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ABSTRACT

This Quarterly gives a comprehensive view of work done across all parts of the National Center for Education Statistics (NCES). Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates a message from NCES on an important and timely subject in education statistics and a featured topic of enduring importance with invited commentary. As part of an overall effort to make reliable data more accessible, the Quarterly provides a quick way to identify information of interest, review key facts and figures, and obtain references to detailed data and analyses. (SLD)

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EDUCATION STATISTICS QUARTERLY

(Volume 1: Issues 1 thru 4)

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EDITORIAL NOTE

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report "statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education."

EDUCATION STATISTICS QUARTERLY

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

A complete annual index of NCES publications will appear in the Winter issue (published each January). Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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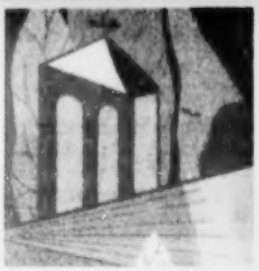

NOTE FROM THE COMMISSIONER

Pascal D. Forgione, Jr.

I am pleased and proud to announce the first issue of the NCES periodical, *Education Statistics Quarterly*, a product that represents the culmination of the efforts of many NCES staff members over a long period of time.

The *Quarterly* was developed to address the needs of policymakers, education advocates, and their staff. It will be released on a regular and timely basis, and will also be available on the NCES Web Site. We designed the *Quarterly* with the goal of providing users with a single comprehensive source of information about all NCES products.

Shortly after becoming the Commissioner of NCES, I summarized my goals for the agency in terms of four values: **quality**, **predictability**, **usefulness**, and **timeliness**. I believe that the *Quarterly* embodies these values and represents a major step forward in the NCES effort to communicate with its constituents and respond to their needs.

Quality

The *Quarterly* will present the results of carefully reviewed reports based on data from a large number and variety of surveys. NCES is proud of its record of producing data of the highest **quality**, and we believe that the resulting analyses reflect this in their relevance and contribution to education research. The *Quarterly* will enhance the impact of NCES products by helping to disseminate them to a wider audience.

Predictability

The *Quarterly* will appear on a **predictable** schedule. There will be four issues per year, appearing in Winter, Spring, Summer, and Fall. These four issues will cover all publications released by NCES during the year. Users will be aware of release cycles for upcoming issues and can plan accordingly.

Usefulness

The *Quarterly* is designed to be user-friendly and **useful** to the education statistics and policy communities. Each issue of the periodical will include a large number of important reports on a variety of topics related to education. The reports will be organized by subject matter, and an annual index will be provided to facilitate using the publication as a reference. Considerable effort has been expended on making the format and style of the reports readable. We believe that the overall design of each issue will make it easy for readers to find information of interest.

Timeliness

Finally, the *Quarterly* will be **timely**. Each issue will contain reports and publications that will have been released in the most recent quarter. We have stressed the importance of this feature of the publication and, as a result, the production schedule has been arranged so that each issue will appear as soon as possible after the end of the quarter.

NCES constantly strives to make its products available in format and language that are most suitable to our widely varied audience. We think that the *Education Statistics Quarterly* will become a major dissemination tool for the information and products coming out of NCES, and we hope that our users will find the *Quarterly* to be as user-friendly as it was meant to be.

FEATURED TOPIC: TEACHER QUALITY

Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers
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Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers

Laurie Lewis, Basmat Parsad, Nancy Carey, Nicole Bartfai, Elizabeth Farris, and Becky Smerdon

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the 1998 Teacher Survey on Professional Development and Training, conducted through the NCES Fast Response Survey System (FRSS), and from the 1993–94 Schools and Staffing Survey (SASS).

Background

In his 1997 State of the Union Address, President Clinton issued a "Call to Action" that included as a priority improving the quality of teachers in every American classroom. President Clinton's speech reflects growing concern over the condition of education and the nation's need for excellent teachers. The nation's educational system must provide our children with the knowledge, information, and skills needed to compete in a complex international marketplace. Good teachers are the hallmark of such an educational system; they are integral to children's intellectual and social development.

In response to these concerns and expectations, this study, undertaken by the National Center for Education Statistics (NCES) using its Fast Response Survey System (FRSS), provides a profile of the quality of the nation's teachers in 1998. The report also includes reanalysis of related data from the 1993–94 Schools and Staffing Survey (SASS).

Teacher quality is a complex phenomenon, and there is little consensus on what it is or how to measure it. For example, definitions range from those that focus on what should be taught and how knowledge should be imparted to the kinds of knowledge and training teachers should possess. There are, however, two broad elements that most observers agree characterize teacher quality: (1) teacher preparation and qualifications, and (2) teaching practices. The first refers to preservice learning (e.g., postsecondary education, certification) and continued learning (e.g., professional development, mentoring). The second refers to the actual behaviors and practices that teachers exhibit in their classrooms (Ingersoll 1996a). Of course, these elements of teacher quality are not independent; excellent teacher preparation and qualifications should lead to exemplary teaching behaviors and practices.

This report is based on current NCES efforts to collect data on the first of these elements (i.e., teacher preparation and qualifications), using a nationally representative survey of full-time public school teachers whose main teaching assignment is in one of the five core fields (English–language arts, social studies–social sciences, foreign language, mathematics, or science) or who teach a self-contained classroom. Specifically, it includes indicators of preservice and continued learning (e.g., degrees held, certification, teaching assignment, professional development opportunities, and collaboration with other teachers). In addition, because schools and communities play an important role in shaping and maintaining high-quality teachers, this study examines the work environments in which educators teach (e.g., formal induction procedures for new teachers, parental support).

This report is timely in light of recent concerns over the quality of our educational system and our teachers. Teachers' professional preparation (as well as their work environment) has been identified as fundamental to improving elementary and secondary education (National Commission on Teaching and America's Future 1996). At the core of education reforms to raise standards, reshape curricula, and restructure the way schools operate is the call to reconceptualize the practice of teaching. Teachers are being asked to learn new methods of teaching, while at the same time they are facing the greater challenges of rapidly increasing technological changes and greater diversity in the classroom.

This FRSS survey, conducted in the spring of 1998, indicates that less than half of American teachers currently report feeling "very well prepared" to meet many of these challenges:

- Although many educators and policy analysts consider educational technology a vehicle for transforming education, relatively few teachers reported feeling very well prepared to integrate educational technology into classroom instruction (20 percent).
- While 54 percent of the teachers taught limited English proficient or culturally diverse students, and 71 percent taught students with disabilities, relatively few teachers who taught these students (about 20 percent) felt very well prepared to meet their needs. Teachers' feelings of preparedness did not differ by teaching experience.
- Only 28 percent of teachers felt very well prepared to use student performance assessment techniques, 41 percent reported feeling very well prepared to implement new teaching methods, and 36 percent reported feeling very well prepared to implement state or district curriculum and performance standards.

This national profile of teacher preparation, qualifications, and work environments provides a context for understanding why many teachers do not report feeling very well prepared to meet many of the challenges they currently face in their classrooms. Key findings are provided in three major areas: (1) preservice learning and teaching assignment, (2) continued learning, and (3) supportive work environment.

Key Findings

Preservice learning and teaching assignment

Growing concern that a number of the nation's teachers are underqualified to teach our children has focused attention on their preservice learning. For example, concern regarding preservice learning has been directed toward teachers' postsecondary degrees—that is, the idea that teachers, particularly secondary teachers, should have an academic major rather than a general education degree (Ravitch 1998). In addition, certification policies have drawn criticism—specifically, that a growing number of the nation's teachers are entering classrooms with emergency or temporary certification (Riley 1998). Finally, attention is increasingly directed toward teaching assignments—that is, teachers being assigned to teach subjects that do not match their training or education (Ingersoll 1996b). Results of this 1998 FRSS survey indicate that

- Virtually all teachers had a bachelor's degree, and nearly half (45 percent) had a master's degree. More high school teachers had an undergraduate or graduate major in an academic field (66 percent), compared with elementary school teachers (22 percent) and middle school teachers (44 percent).
- Most of the teachers (92 percent and 93 percent, for departmentalized and general elementary, respectively) were fully certified in the field of their main teaching assignment. However, emergency and temporary certification was higher among teachers with 3 or fewer years of experience than among teachers with more teaching experience. For example, 12 percent of general elementary classroom teachers

with 3 or fewer years of experience had emergency or temporary certification, whereas less than 1 percent of general elementary classroom teachers with 10 or more years of experience had emergency or temporary certification. The results are similar for departmentalized teachers.

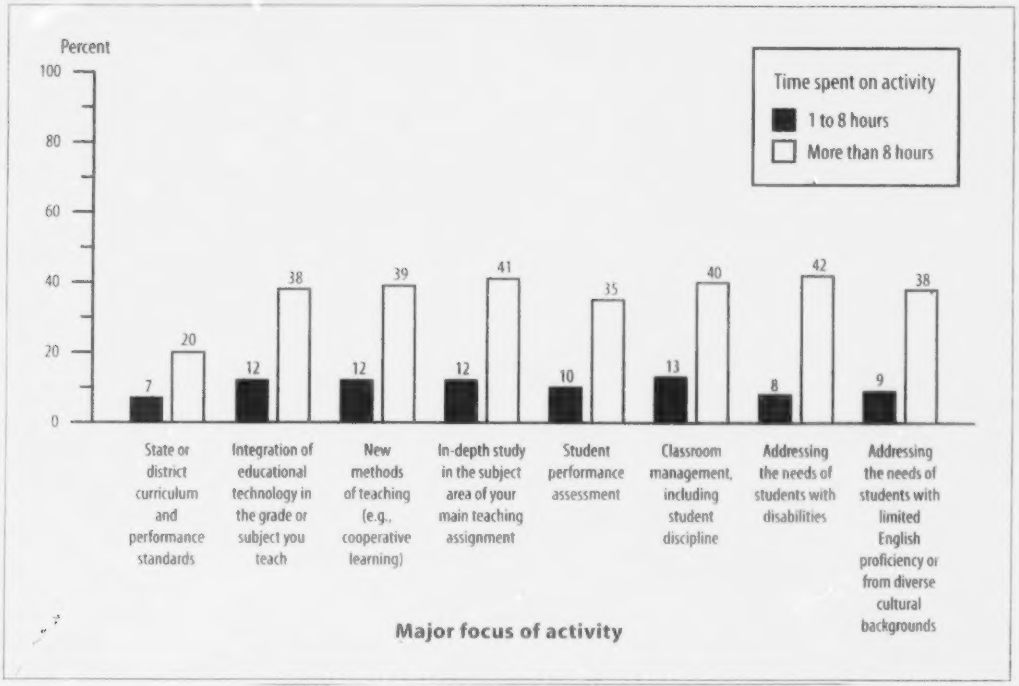
- Despite the fact that the measure of out-of-field teaching used in this report is conservative—it only includes teachers' main teaching assignments in core fields—the results indicate that a number of educators were teaching out of field. For example, the percentage of teachers in grades 9 through 12 who reported having an undergraduate or graduate major or minor in their main teaching assignment field was 90 percent for mathematics teachers, 94 percent for science teachers, and 96 percent for teachers in English–language arts, social studies–social sciences, and foreign language. This means that 10 percent of mathematics teachers, 6 percent of science teachers, and 4 percent of English–language arts, foreign language, and social studies–social science teachers in grades 9 through 12 were teaching out of field. Compared with teachers in grades 9 through 12, teachers in grades 7 through 12 were significantly less likely to report having an undergraduate or graduate major or minor in the field of their main teaching assignment for mathematics (82 percent), science (88 percent), English–language arts (86 percent), and social studies–social sciences (89 percent). These results indicate that teachers in grades 7 and 8 are less likely to be teaching in field than are teachers in grades 9 through 12.

Continued learning: Professional development and teacher collaboration

In order to meet the changing demands of their jobs, high-quality teachers must be capable and willing to continuously learn and relearn their trade. Professional development and collaboration with other teachers are strategies for building educators' capacity for effective teaching, particularly in a profession where demands are changing and expanding. However, traditional approaches to professional development (e.g., workshops, conferences) have been criticized for being relatively ineffective because they typically lack connection to the challenges teachers face in their classrooms, and they are usually short term. Research suggests that unless professional development programs are carefully designed and implemented to provide continuity between what teachers learn and what goes on in their classrooms and schools, these activities are not likely to produce any long-lasting effects on either teacher competence or student outcomes (Fullan with Stiegelbauer 1991). In addition to quality professional development, peer collaboration has also been recognized as important for teachers' continuous learning. The 1998 survey indicates that

- Virtually all teachers had participated in professional development activities (99 percent) and at least one collaborative activity (95 percent) in the last 12 months. Participation in professional development activities typically lasted from 1 to 8 hours, or the equivalent of 1 day or less of training. Teachers were most likely to participate in professional development activities focused on areas that reformers emphasize (e.g., implementing state or district curriculum and performance standards, integrating technology into the grade or subject taught, and using student performance assessment techniques).
- Nineteen percent of teachers had been mentored by another teacher in a formal relationship; 70 percent of teachers who were mentored at least once a week reported that it improved their teaching "a lot."
- Increased time spent in professional development and collaborative activities was associated with the perception of significant improvements in teaching. For every content area of professional development, a larger proportion of teachers who participated for more than 8 hours believed it improved their teaching "a lot" compared with teachers who participated for 8 hours or less (figure A). For example, teachers who spent more than 8 hours in professional development on in-depth study in the subject area of their main teaching assignment were more likely than those who spent 1 to 8 hours to report that participation in the program improved their teaching a lot (41 percent versus 12 percent). Moreover, teachers who participated in common planning periods for team teachers at least once a week were more likely than those who participated a few times a year to report that participation improved their teaching a lot (52 percent versus 13 percent).

Figure A. — Among full-time public school teachers who participated in professional development activities in the last 12 months, the percentage believing that activities improved their teaching a lot, by major focus of activity and hours spent: 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Teacher Survey on Professional Development and Training," FRSS 65, 1998.

Supportive work environment

In addition to teacher learning, a key factor in understanding teacher quality is work environment—that is, what happens to teachers after they enter the workforce, including whether they receive support from the schools and communities in which they work and from the parents of the children they teach. The FRSS survey indicates that

- One-third of teachers had participated in an induction program when they first began teaching. However, newer teachers were more likely to have participated in some kind of induction program at the beginning of their teaching careers than were more experienced teachers (65 percent of teachers with 3 or fewer years of experience versus 14 percent of teachers with 20 or more years of experience). This survey did not elicit information regarding the intensity or usefulness of the induction programs.
- Teachers perceived relatively strong collegial support for their work; 63 percent strongly agreed that other teachers shared ideas with them that were helpful in their teaching. In addition, many teachers also felt supported by the school administration, with 55 percent agreeing strongly that the school administration supported them in their work and 47 percent agreeing strongly that goals and priorities for the school were clear.
- Teachers perceived somewhat less support from parents than from other teachers and the school administration. Only one-third of teachers agreed strongly that parents supported them in their efforts to educate their children.
- Collegial, school, and parental support varied by the instructional level of the school, with elementary school teachers perceiving stronger support than high school teachers.

Summary

This report provides a national profile of teacher quality, specifically focused on teachers' learning (both preservice and continued) and the environments in which they work. Included is important information regarding teachers' education, certification, teaching assignments, professional development, collaboration, and supportive work environment. In addition, comparisons by instructional level and poverty level of the school provide information about the distribution of teacher quality. This information provides a context for understanding why few teachers report feeling very well prepared to meet the challenges they face in their classrooms. This report is the first in a series of biennial reports that will be undertaken by NCES. Thus, the information provided here should serve as a benchmark for these important dimensions of teacher quality and preparation.

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Data sources: The Teacher Survey on Professional Development and Training, conducted through the NCES Fast Response Survey System (FRSS 65, 1998), and the 1993–94 Schools and Staffing Survey (SASS).

For technical information, see the complete report:

Lewis, L., Parsad, B., Carey, N., Bartfai, N., Farris, E., and Smerdon, B. (1999). *Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers* (NCES 1999–080).

For a detailed description of the 1993–94 SASS sample design, see

Abramson, R., Cole, C., Fondelier, S., Jackson, B., Parmer, R., and Kaufman, S. (1996). *1993–94 Schools and Staffing Survey: Sample Design and Estimation* (NCES 96–089).

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To obtain the complete report (NCES 1999–080), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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Invited Commentary: Better Policies Leading to Improved Teaching

John F. Jennings, Director, Center on Education Policy, Washington, DC

This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

The featured report, a national profile of teacher quality in public elementary and secondary schools, could not have come at a more appropriate time. The President, Congress, governors, state legislatures, and many others are increasingly focused on how to improve the quality of the teaching occurring in America's classrooms.

As only one example, in 1998 the federal Higher Education Act was amended to include financial incentives for college students to become teachers and for institutions of higher education to produce better teachers. Also included in the new law is a controversial new accountability provision leading to the eventual cut-off of federal student aid to teacher preparation institutions with low rates of passage by their graduates on state certification and licensure assessments.

To better inform the debate on how to improve teaching, the National Center for Education Statistics has compiled the *Teacher Quality* report, a clear and readable summary of what teachers say about their preparation and qualifications, and about practices supporting improved teaching in their schools. But, it is important to know what this document is *not*. The report does not include information on the quality of training that institutions of higher education have given to new teachers, nor does it say anything about whether teachers are doing a good job in their classrooms. Evidence about those matters must come from other sources, such as from assessments of teachers' knowledge and of students' academic performance.

The good news in the report is that American public school teachers have many of the basic prerequisites for teaching: almost all have bachelor's degrees, nearly half have master's degrees, most are fully certified in the field of their main teaching assignment, most have their main teaching assignment in the field in which they had an undergraduate or graduate major or minor, almost all participated in professional development the previous year, almost all collaborated with other teachers in the previous year, and they work in supportive environments.

Additional good news comes from trends showing the effects of recently enacted or implemented reforms. Newer teachers are substantially more likely than senior colleagues to have degrees in an academic field; more teachers than previously have their main teaching assignments in the field of their graduate or undergraduate major or minor; and more professional development is occurring regarding student academic standards and assessments, the use of educational technology, and the implementation of new teaching techniques. Moreover, newer teachers are far more likely to participate in induction programs than did their more senior colleagues, teachers believe that school administrators are more supportive of their work than was reported in the past, and schools have clearer goals and priorities than in the past.

Those are the facts, as teachers see them. In a way, it can be said that the basics for a good public educational system are in place. As nearly everyone knows, though, the bar has been raised: good is no longer good enough. In this report, teachers acknowledge this fact by admitting that, in many important regards, they do not feel themselves to be well prepared to teach. Less than half of teachers felt "very well prepared" to implement new teaching methods. About a third felt very well prepared to implement curriculum and performance standards, and fewer felt adept at using student performance assessment techniques. Only about a fifth of teachers felt very well prepared to integrate educational technology or to address the needs of students with disabilities, those with limited English proficiency, or those from diverse cultural backgrounds.

To address those shortcomings perceived by teachers themselves, the many recently initiated reforms of teacher preparation and practice must be accelerated. For example, teachers who are uncertified are mostly those who are new to the profession, and the number of teachers who leave teaching in their first years seems to be higher than in most other professions. Therefore, supportive activities for new teachers must be expanded. For instance, induction programs for new teachers, now affecting two-thirds of them, should be made available to all who wish to participate. Mentoring by more experienced teachers, which now involves less than a fifth of all teachers, must also be made more readily available. Further momentum is needed to increase the number of teachers who have majors in an academic field and who are teaching in the field of their undergraduate or graduate major or minor.

In addition to accelerating current reforms, this report clearly points to two areas needing much greater attention, if the country is to improve teaching in the public schools: teachers are not spending enough time on good practices to improve their teaching, and poor and minority children are not being afforded a fair chance to succeed in school.

In the report, teachers assert that the greater the amount of time invested in a practice to improve teaching, the greater are the benefits. This is common sense, but unfortunately what we do today in our schools does not always reflect what we intuitively may know.

Most professional development, for example, lasts one day or less (1 to 8 hours). Yet, teachers report that long-term professional development is far more effective in helping them to improve teaching in the classroom. In fact, there is a consistent progression of perceived effectiveness for all such activities as the number of hours increases. Eight percent of teachers believe that 1 to 8 hours of training addressing the needs of students with disabilities helps them "a lot" with classroom teaching, but 42 percent believe that more than 8 hours helps them a lot. With the integration of educational technology into teaching, the difference is between 12 percent and 38 percent.

Furthermore, practices within schools, such as common planning among teachers and mentoring of new teachers by more experienced ones, show the same pattern: some effect with a short time spent on the activity and progressively greater effects from longer periods of time devoted to it. For example, networking with teachers outside the school is perceived as helping "a lot" by 15 percent of teachers if done a few times a year, but 49 percent of teachers believe in its greater effectiveness if done at least once a week. Eleven percent of teachers being mentored believe it helps a lot if done a few times a year, but 70 percent of them so believe if done at least once a week.

In a nutshell, more time on task produces greater results—much greater. Teachers are implicitly asking in this report that policymakers ensure that they have enough time to learn how to teach better. Extended professional development, long-term mentoring, and extensive sessions for common planning among teachers are the ingredients that will result in better teaching for youngsters—according to teachers.

The question is whether states, local school districts, and unions will find ways to give teachers that time. Can the school day be reconfigured to allow greater time for teacher preparation? Will teachers themselves, as represented by their local unions, show enough flexibility in negotiations with school boards to implement changes so that they can be better prepared? Can states and school districts find financial resources to provide for in-depth preparation?

The other persistent theme that comes from these data is that poor and minority children face serious obstacles in getting a good education. This too is no surprise, but it is enlightening to see how teachers themselves report on the problems facing these children.

A stark example is that teachers who have master's degrees are far more likely to be found in more affluent schools—57 percent of teachers in the lowest poverty schools have a master's, compared with 37 percent in the poorest schools. In many subject areas, moreover, persons teaching in the field in which they received a major or minor are less likely to be found in central cities, in schools with high-minority enrollments, and in high-poverty schools.

Furthermore, the least-taken professional development activity is addressing the needs of students with limited English proficiency, of those who are from diverse cultural backgrounds, or of those who are disabled. Despite that discouraging fact, some hope arises because newer teachers, those in heavily minority schools, and those from the western region of the country are more likely to be involved in such professional development activities.

A further problem facing poor and minority children is the lack of parental support for their education. In general, teachers believe that parents of all children are not greatly supportive of their efforts to educate; but they see a great difference in the degree of support provided by parents from more affluent areas and that provided by parents from poor areas. Forty-one percent of teachers in schools with less than 15 percent of children eligible for free or reduced-price lunches strongly agree that parents support them, but the perceived level of support declines progressively as the level of poverty in the school increases. In the poorest schools, only 23 percent of teachers strongly agree that parents are supportive of their efforts to educate their children.

The United States is not going to be first in the world in education unless we deal better with those problems facing poor and minority children—a growing proportion of American students. Such youngsters are not only more likely to have less well qualified teachers in their classrooms, but students in the poorest schools also have less support from home to do well in school—at least in the opinion of their teachers.

Policymakers, such as state legislators, will find the *Teacher Quality* report very useful. For example, they will learn that recently initiated reforms of teacher preparation, certification, licensure, and staff development are going in the right direction, but they must be accelerated. In the process of implementing such reforms, much greater attention must be given to the intensity of the effort; more time spent on the activity will achieve greater results.

Lastly, the needs of poor, minority, and disabled children must receive greater attention from the federal government, the states, and local school districts. We must recommit ourselves to bringing equal educational opportunity to all of America's children.

Invited Commentary: Understanding the Problem of Teacher Quality in American Schools

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This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

Few educational problems have received more attention in recent times than the failure to ensure that our nation's elementary and secondary classrooms are all staffed with qualified teachers. Since the release of *A Nation at Risk* in 1983 by the National Commission on Excellence in Education, improving the quality of teachers has been the subject of a steady progression of blue ribbon panels, commissions, and national forums.

Such concern with the quality and qualifications of teachers is not surprising. Elementary and secondary schooling are mandatory, and it is into the custody of teachers that children—our children—are legally placed for a significant portion of their lives. The quality of teachers is undoubtedly among the most important factors shaping the learning and growth of students. Moreover, the largest single component of the cost of education in any country is teacher compensation. But despite a longstanding recognition of the importance of teacher quality, it is, surprisingly, among the least understood issues in education.

This recent upsurge of concern with teacher quality has, in turn, led to a rapidly expanding demand for data on the caliber of the nation's teaching force. However, it is very difficult to empirically assess, especially with large-scale data, the actual degree of quality teaching provided to students in classrooms (e.g., Haney, Madaus, and Kreitzer 1987; Haertel 1991). As with employees in many other service occupations, there is little consensus concerning both how to define and how to measure quality teacher performance (Ingersoll in press). Invariably, data collection efforts primarily focus on what can more readily be measured—teachers' qualifications. Although data on the qualifications of teachers, such as their coursework and degrees, are only indirect measures of the actual caliber of teaching, they are vital information because there is almost universal consensus concerning the importance of teacher education and training.[1]

In order to provide these kinds of data on the nation's teaching force, the National Center for Education Statistics (NCES) released, beginning in the early 1990s, a major new data source—the Schools and Staffing Survey (SASS).

Unlike most major large-scale education surveys, SASS does not focus on students, nor feature measures of student achievement. Instead, SASS focuses on teachers. Perhaps for this reason, SASS has been somewhat underutilized and underappreciated. This is unfortunate because SASS is the largest and most comprehensive source of information on teachers available. For instance, it dwarfs the widely cited and used National Survey of Science and Mathematics Education (NSSME).[2] NSSME focuses solely on math and science teachers and has a relatively limited sample—about 6,000 teachers from 1,200 public schools. SASS, in contrast, samples about 55,000 teachers of all types from 11,000 schools, both public and private.[3]

Accordingly, since the release of SASS, NCES has sponsored a number of projects profiling the quality and qualifications of the nation's elementary and secondary teachers (e.g., Choy et al. 1993; Henke et al. 1997), of which *Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers* is the latest effort and a highlight of this issue of the *Quarterly*. Like earlier reports, *Teacher Quality* takes advantage of the strengths of SASS by presenting a wide range of indicators of teachers' qualifications, preparation, and job conditions. It also nicely supplements 1993–94 SASS data with data from a more recent, but less comprehensive, source—the 1998 NCES Teacher Survey on Professional Development and Training.

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[1] There is a large body of empirical research devoted to isolating and assessing the effects of teacher qualifications (e.g., education, training, experience) on student achievement. Although there are some inconsistent findings and considerable debate among researchers revolving around the methodological difficulties of statistically controlling for all the many factors affecting students' learning, in general this research has found that measures of teacher qualifications are important predictors of both teaching quality and student learning. For reviews or examples of this research, see Darling-Hammond and Hudson (1990); Ferguson (1991); Hedges, Laine, and Greenwald (1994); National Commission on Teaching and America's Future (1997); and, for a recent empirical analysis using data from the National Education Longitudinal Study of 1988, see Goldhaber and Brewer (1997).

[2] NSSME is a survey of science and mathematics educational practices in the United States conducted in 1977, 1985, and 1993 by Horizon Research with support from the National Science Foundation. Materials concerned with NSSME may be obtained from Iris Weiss, Horizon Research, Inc., 111 Cloister Court, Suite 220, Chapel Hill, NC 27514. For a widely cited report that uses NSSME data on teacher quality, see Oakes (1990).

[3] For detailed discussions of the rationale, conceptualization, and design of SASS, see the original Rand Corporation design report by Haggstrom, Darling-Hammond, and Grissmer (1988) or a more recent report by Ingersoll (1995b).

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One of the most important contributions of SASS has been to provide accurate nationally representative data on the phenomenon known as out-of-field teaching. Out-of-field teaching is one of the most important but least understood sources of underqualified teaching in schools. Assessing the prevalence of out-of-field teaching is crucial because highly qualified teachers may, in actuality, become highly unqualified if they are assigned to teach subjects for which they have little training or education. Educators, of course, have long been aware of the existence of out-of-field teaching, but an absence of accurate statistics has kept this problem largely unknown to the public. With the publication of the SASS data on out-of-field teaching beginning in 1995, this situation has dramatically changed.[4]

Empirical measurement of the extent of out-of-field teaching faces a methodological obstacle—there is surprisingly little consensus on how to define a "qualified teacher." While most agree that teachers ought to undergo some kind of training and preparation, there is little agreement concerning how many and which kinds of courses and credentials teachers ought to have to be considered adequately qualified (Haertel 1991).

Typically, those of us who use SASS data to assess out-of-field teaching skirt this debate by adopting a "conservative" and "minimalist" approach. The primary focus of most of our analyses is to show how many secondary school teachers do not have even minimal academic credentials—usually defined as neither a major nor a minor—in their teaching fields. A college minor certainly does not guarantee quality teaching, nor even a qualified teacher. Our operating assumption is that adequately qualified teachers, especially at the secondary school level and especially in the core academic fields, ought to have, as a minimum prerequisite, at least a college minor in the subjects they teach. In short, our assumption is that few parents would expect their teenagers to be taught, for example, 11th-grade trigonometry by a teacher who did not have at least a minor in math, no matter how bright the teacher. The data show, however, that this situation is all too commonly the case.

In the *Teacher Quality* report, for example, data from SASS and from the 1998 Teacher Survey on Professional Development and Training tell us that about one-fifth of secondary (7th- through 12th-grade) teachers whose main teaching field is math have neither a major nor a minor in math or related fields, such as math education or engineering. SASS data that I have presented elsewhere (Ingersoll 1999) show similarly high numbers of teachers without teaching certificates in their assigned fields. Moreover, less conservative measures than those used in this report reveal an even bleaker picture. For instance, if we broaden the focus to include all those who teach math in secondary schools, regardless of whether it is their main field or not, the amount of out-of-field teaching jumps to one-third without at least a minor in the field. Likewise, if we upgrade the definition of a "qualified" teacher to include only those who hold *both* a college major and a teaching certificate in math, the amount of out-of-field teaching again substantially increases—only 55 percent of all public secondary math teachers have both a major and a certificate in math (Ingersoll 1999).

The negative implications of such high levels of out-of-field teaching are obvious. Is it any surprise, for example, that science achievement is so low given that, *even* at the 12th-grade level, 41 percent of public school students in physical science classes are not taught by someone with either a major or a minor in chemistry, physics, or earth science (Ingersoll 1999)?

Not surprisingly, our findings on out-of-field teaching have captured widespread interest. Over the past couple of years they have been widely reported in the national media and have been featured in numerous major education reports.[5] As a result, the problem of out-of-field teaching has suddenly become a real and major issue in the realm of education policy. Despite this attention, however, out-of-field teaching has also been largely misunderstood. The source of the misunderstanding relates to the crucial question of *why* so many teachers are teaching subjects for which they have so little background.[6]

Many people assume that out-of-field teaching is a problem of poorly educated teachers and can be remedied by more rigorous standards for teacher education and training. Typically, those subscribing to this view assume that the source of the problem lies in a lack of academic coursework on the part of teachers that can be remedied by requiring prospective teachers to complete a "real" undergraduate major in an academic discipline or specialty.

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[4] The major NCES reports on out-of-field teaching are *Teacher Supply, Teacher Qualifications, and Teacher Turnover* (Ingersoll 1995a); *Qualifications of the Public School Teacher Workforce: 1988–1991* (Bobbitt and McMillen 1995); and *Out-of-Field Teaching and Educational Equality* (Ingersoll 1996).

[5] Among these are *What Matters Most: Teaching for America's Future* and *Doing What Matters Most: Investing in Quality Teaching* (National Commission on Teaching and America's Future 1996 and 1997); Quality Counts, a special supplement to *Education Week* newsmagazine (1998); and *Education Watch* (Education Trust of the American Association for Higher Education 1996).

[6] For a more detailed presentation of my research on the causes of out-of-field teaching, see Ingersoll (1999).

There is some truth to this view, and the training of teachers does leave much to be desired. As the *Teacher Quality* report shows, teachers themselves tell us that, for a number of key skills and domains, they do not feel very well prepared. This deficit is being recognized and, indeed, over the past decade many districts and states have mandated more rigorous academic and certification requirements for prospective teachers.

However, the SASS data also show that, though very worthwhile, these kinds of reforms will not eliminate out-of-field teaching assignments and, hence, will not alone solve the problem of underqualified teaching. The source of out-of-field teaching lies not only in the amount of education or training teachers have but in the lack of fit between teachers' fields of preparation and their teaching assignments. In short, mandating more rigorous requirements for prospective teachers will help little if large numbers of such teachers continue to be assigned by their principals to teach classes that do not match the field of their degree, their certification, or both.

A second, and the most popular, explanation of the problem of out-of-field teaching blames teacher shortages. This view holds that shortfalls in the number of available teachers, caused by a combination of increasing student enrollments and a "graying" teaching force, have led many school systems to resort to lowering standards to fill teaching openings, the net effect of which is out-of-field teaching.

There is also some truth to this view. The SASS data show that since the late 1980s, some schools have had difficulty filling their teaching vacancies with qualified candidates. Most important, when faced with such difficulties, their administrators say they most commonly do three things: hire less qualified teachers; assign teachers trained in another field or grade level to teach in the understaffed area; and make extensive use of substitute teachers (Ingersoll 1999). Each of these coping strategies results in out-of-field teaching.

But there are several problems with the shortage explanation for out-of-field teaching. First, it cannot explain the high levels of out-of-field teaching that the data tell us exist in fields, such as English and social studies, that have long been known to have surpluses. Second, in recent years it is only a minority of schools that actually have had any trouble filling their teaching vacancies with qualified candidates. For instance, in 1993–94 only 16 percent of secondary schools reported any difficulty filling their openings for math teachers. These difficulties cannot account for the SASS data showing that in that same year, almost one-third of all public secondary school math teachers were uncertified in math (Ingersoll 1999).

Finally, a third problem with the teacher-shortage explanation of out-of-field teaching is the assumption that the hiring difficulties that exist are due to a lack of able candidates willing to enter teaching. The demand for new teachers, and the subsequent difficulties that some schools face filling their positions, come about primarily because of teachers choosing to move from or leave their jobs at rates higher than in many other occupations. And while it is true that teacher retirements are increasing, teacher turnover appears to have little to do with a graying workforce. In contrast, analyses I have done using data from the SASS Teacher Followup Survey show that the high rates of teacher turnover plaguing schools are far more often a result of two related causes: teachers dissatisfied with teaching and teachers seeking to pursue another career (Ingersoll 1995a, 1997).

The implications of these findings for reform are crucial. Initiatives and programs designed to recruit new candidates into teaching, though worthwhile in many ways, will not solve the problem of underqualified teachers in classrooms if they do not also address the problem of teacher retention. In short, recruiting more teachers will help little if large numbers of such teachers then leave.

If deficits in the qualifications and quantity of teachers do not adequately account for the high levels of out-of-field teaching in the United States, what then is the cause? My own hypothesis, drawn from the sociology of organizations, occupations, and work as well as from my own experiences as a former high school teacher, is that understanding underqualified teaching requires a close examination of the way schools and teachers are managed. Out-of-field teaching is common, I believe, because it is not only legal but also more convenient, less expensive, and less time consuming than the alternatives.

For example, rather than find and hire a new science teacher to teach a newly state-mandated science curriculum, a school principal may find it more convenient to assign a couple of English and social studies teachers to each "cover" a section or two in science. When faced with the choice between hiring a fully qualified candidate for an English position or hiring a lesser qualified candidate who is also willing to coach a major varsity sport, a principal may find it more convenient to do the latter. If a teacher suddenly leaves in the middle of a semester, a principal may find it faster and cheaper to hire a readily available, but not fully qualified, substitute teacher, rather than conduct a formal search for a new teacher.

The managerial choice to misassign teachers may save time and money for the school, and ultimately for taxpayers, but it is not cost free. As the best contemporary research has insightfully revealed, good teaching requires a great deal of expertise and skill, and good teachers are not like interchangeable blocks that can be placed in any empty slot regardless of their type of training (e.g., Shulman 1986).

Teachers do not operate in a vacuum. Ensuring quality teaching in classrooms requires more than recruiting and training able teachers. It also requires providing a well-managed workplace that treats teachers like professionals who have expertise in a specialty. The key issue for future research, then, is to begin to understand the social and organizational context surrounding teachers and to illuminate the ways it does or does not foster quality teaching.

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Early Childhood Education

Preprimary Education Enrollment
from The Condition of Education 1998 19

Early Literacy Experiences in the Home
from The Condition of Education 1998 22

Preprimary Education Enrollment

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Participating in early childhood programs such as Head Start, nursery school, prekindergarten, and kindergarten can better prepare a child to enter first grade. Many policymakers and educators believe that it is important to help all children start elementary school on an equal footing with other children. Involving students in preprimary programs beginning at earlier ages may provide these students with valuable experiences that will help them start elementary school better prepared to learn.

- Preprimary enrollment rates for 3-, 4-, and 5-year-olds were higher in 1996 than in 1991. In 1996, 37 percent of 3-year-olds, 58 percent of 4-year-olds, and 90 percent of 5-year-olds were enrolled in preprimary education.
- In 1996, similar percentages of white and black 3- and 4-year-olds were enrolled in center-based programs, while their Hispanic peers were less likely to be enrolled.
- Three- and 4-year-olds from families with incomes of more than $50,000 were more likely than 3- and 4-year-olds from families with incomes of $50,000 or less to be enrolled in preprimary education.
- There was a positive relationship between parents' educational attainment and the enrollment rates of 3- and 4-year-olds: as parents' educational attainment increased, so did the preprimary enrollment rates of their children. However, enrollment rates of 5-year-olds were similar, regardless of their parents' educational attainment.

Data sources: The following components of the National Household Education Survey (NHES): Early Childhood Education (1991), School Readiness (1993), Early Childhood Program Participation (1995), and Parent and Family Involvement in Education (1996).

For technical information, see

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For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education 1998* (*http://nces.ed.gov/pubs98/condition98/index.html*), or
- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999-025).

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Percentage of 3-, 4-, and 5-year-olds enrolled in center-based programs or kindergarten, by selected student characteristics: 1991, 1993, 1995, and 1996

	3-year-olds				4-year-olds				5-year-olds			
Selected student characteristics	**1991**	**1993**	**1995**	**1996**	**1991**	**1993**	**1995**	**1996**	**1991**	**1993**	**1995**	**1996**
Total	31.4	34.1	37.4	36.7	52.7	55.3	60.9	57.7	86.4	90.0	90.3	90.2
Race-ethnicity												
White	33.4	33.7	40.2	39.6	52.4	53.7	60.8	58.8	85.7	88.9	88.6	88.8
Black	31.6	41.9	41.1	40.5	57.4	62.9	68.2	67.8	92.3	93.2	93.7	94.1
Hispanic	19.8	27.2	21.2	22.1	47.5	48.9	49.0	45.3	85.3	91.4	93.4	90.4
Household income												
$10,000 or less	25.4	32.7	26.2	36.0	43.3	52.6	54.3	52.7	86.1	89.2	90.9	92.7
10,001–20,000	23.2	21.6	27.0	28.0	45.0	47.2	52.3	45.3	84.6	90.4	89.7	87.6
20,001–35,000[1]	21.3	22.2	27.7	30.8	48.0	47.8	49.7	50.6	85.1	86.8	90.7	87.8
35,001–50,000[1]	33.4	37.9	38.1	42.2	52.3	57.2	59.5	58.2	87.3	90.6	88.5	89.7
50,001 or more	52.9	58.7	61.2	55.0	74.8	73.2	80.7	75.8	89.0	93.7	90.9	92.8
Parents' highest education level												
Less than high school diploma	17.3	17.1	16.0	[2]22.0	33.1	42.8	[2]42.4	[2]47.3	85.5	79.9	92.5	90.3
High school diploma or GED	23.0	23.0	26.3	28.9	40.8	43.2	51.1	47.3	84.8	89.0	89.2	89.9
Some college, vocational, or technical	31.0	35.9	35.6	34.5	56.3	61.1	63.3	59.8	87.7	91.1	90.2	88.6
Bachelor's degree	41.5	41.1	51.7	49.6	67.2	64.1	70.7	62.6	88.1	92.5	91.6	92.6
Graduate or professional school	53.0	61.9	[2]60.8	60.4	72.0	73.3	77.9	78.1	87.0	94.3	89.8	92.1
Family structure												
Two biological or adoptive parents	—	34.4	38.6	38.0	—	55.1	61.3	57.8	—	89.1	88.8	89.0
One biological or adoptive parent	—	33.8	36.9	37.3	—	57.2	63.0	58.4	—	92.1	94.0	91.9
One biological or adoptive and one step parent	—	[2]32.7	[2]23.1	[2]14.7	—	[2]49.5	[2]46.9	[2]45.8	—	87.3	89.4	93.2
Other relatives	—	[2]34.8	[2]20.8	[2]23.1	—	[2]52.2	[2]61.3	[2]55.9	—	[2]92.6	[2]88.0	96.5

— Not available.

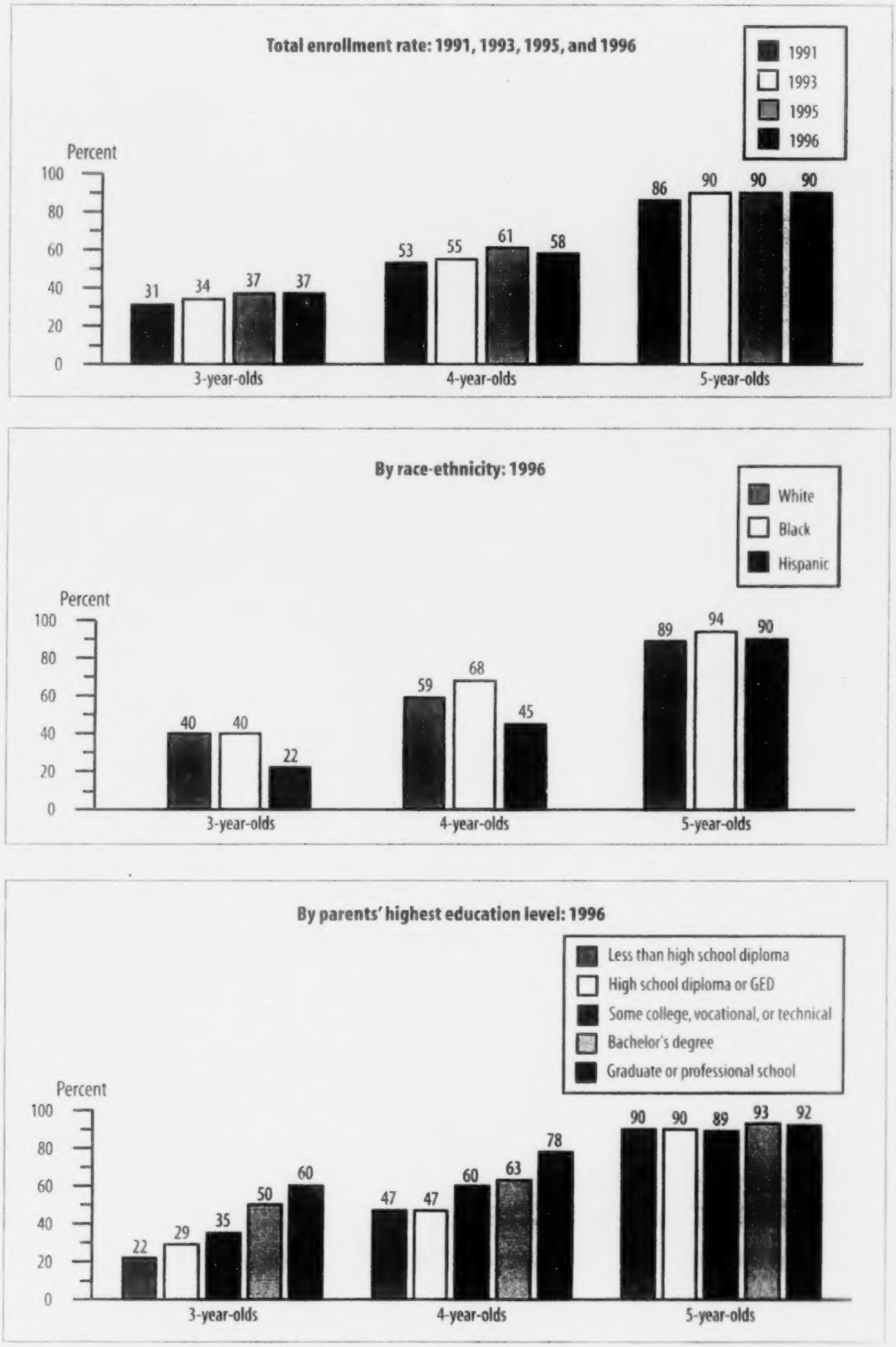
[1] The middle two income ranges in 1991 were $20,001–$30,000 and $30,001–$50,000.

[2] Interpret with caution; standard errors are large due to small sample sizes.

NOTE: Included in the total but not shown separately are children from other racial-ethnic groups and other types of family structures. This analysis includes children ages 3–5 who were not enrolled in first grade. Age is as of December 31 of the prior year. Center-based programs include Head Start, nursery school, and prekindergarten.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1991 (Early Childhood Education File), 1993 (School Readiness File), 1995 (Early Childhood Program Participation File), and 1996 (Parent and Family Involvement in Education File).

Percentage of 3-, 4-, and 5-year-olds enrolled in center-based programs or kindergarten



NOTE: Included in the total but not shown separately are children from other racial-ethnic groups. This analysis includes children ages 3–5 who were not enrolled in first grade. Age is as of December 31 of the prior year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1991 (Early Childhood Education File), 1993 (School Readiness File), 1995 (Early Childhood Program Participation File), and 1996 (Parent and Family Involvement in Education File).

Early Literacy Experiences in the Home

This article was originally published as an Indicator of the Month, taken from* The Condition of Education 1998. *The sample survey data are from the NCES National Household Education Survey (NHES).

Family participation in literacy activities provides valuable developmental experiences for young children. In addition to developing an interest in reading, children who are read to, told stories, and visit the library may start school better prepared to learn. Engaging young children in literacy activities at home also enables parents and other family members to become active participants in their children's education at an early age.

- In 1996, more than 80 percent of children ages 3–5 were read to three or more times or told a story in the past week by a parent or family member, while 38 percent had visited a library in the past month. The percentage of children who were read to or told a story increased between 1991 and 1996.
- Children ages 3–5 who were not enrolled in preprimary education were just as likely to have been told a story by a parent or family member in the past week as their peers who were enrolled in kindergarten in 1996. However, children ages 3–5 who were not enrolled in preprimary education were less likely to have been read to three or more times in the past week or to have visited a library in the past month than children who were enrolled in kindergarten.
- White children ages 3–5 were more likely to have been read to three or more times in the past week than their black or Hispanic counterparts in 1996. Additionally, white children were more likely to have visited a library in the past month than their black and Hispanic peers.
- In 1996, children ages 3–5 whose parents' highest education level was a bachelor's degree or higher were more likely to have been read to at least three times in the past week or to have visited a library in the past month than children whose parents' highest education level was a high school diploma or GED.

Data sources: The following components of the National Household Education Survey (NHES): Early Childhood Education (1991), Early Childhood Program Participation (1995), and Parent and Family Involvement in Education (1996).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education 1998* (NCES 98-013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education 1998* (*http://nces.ed.gov/pubs98/condition98/index.html*), or
- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999-025).

Author affiliations: J. Wirt and T. Snyder are affiliated with NCES; J. Sable, Y. Bae, and J. Stennett, with Pinkerton Computer Consultants, Inc.; S.P. Choy, with MPR Associates, Inc.; and M. Perie and A. Gruner, with the American Institutes for Research.

For questions about content, contact John Wirt (*John_Wirt@ed.gov*).

To obtain this Indicator of the Month (NCES 1999-003), call the toll-free ED Pubs number (877-433-7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202-512-1800).

Percentage of children ages 3–5 who participated in various literacy activities with a parent or family member, by selected characteristics: 1991, 1995, and 1996

	Read to three or more times in the past week			Told a story at least once in the past week			Visited a library in the past month		
Selected characteristics	**1991**	**1995**	**1996**	**1991**	**1995**	**1996**	**1991**	**1995**	**1996**
Total	71.4	83.1	82.9	72.0	81.4	82.0	36.6	41.2	38.2
School enrollment status and level									
Not enrolled	68.8	81.5	80.0	72.3	80.3	80.0	30.5	32.0	31.5
Center-based programs*	75.2	85.8	85.2	74.1	82.7	84.0	41.0	46.3	42.6
Kindergarten	71.1	81.3	83.8	68.8	81.0	81.9	41.7	47.3	42.1
Race-ethnicity									
White	77.7	89.0	88.9	73.8	83.9	83.9	40.7	45.1	42.5
Black	59.0	73.7	75.9	66.0	74.4	76.6	27.8	34.1	34.1
Hispanic	53.0	61.5	65.3	68.4	75.1	79.3	24.5	28.0	25.9
Parents' highest education level									
Less than high school diploma	53.8	64.4	58.8	67.4	71.9	72.8	18.3	18.3	19.4
High school diploma or GED	63.5	77.9	77.4	68.2	77.6	79.9	26.0	31.5	30.1
Some college, vocational, or technical	74.0	85.3	86.5	74.2	82.9	84.6	38.5	40.9	37.1
Bachelor's degree	82.1	89.7	90.9	74.7	85.0	83.2	52.0	53.5	51.9
Graduate or professional school	88.3	94.0	96.1	78.4	88.2	85.8	59.1	62.8	59.5

*Center-based programs include Head Start, nursery school, and prekindergarten.

NOTE: This analysis includes children ages 3–5 who were not enrolled in first grade. Included in the total but not shown separately are children from other racial-ethnic groups.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1991 (Early Childhood Education File), 1995 (Early Childhood Program Participation File), and 1996 (Parent and Family Involvement in Education File).

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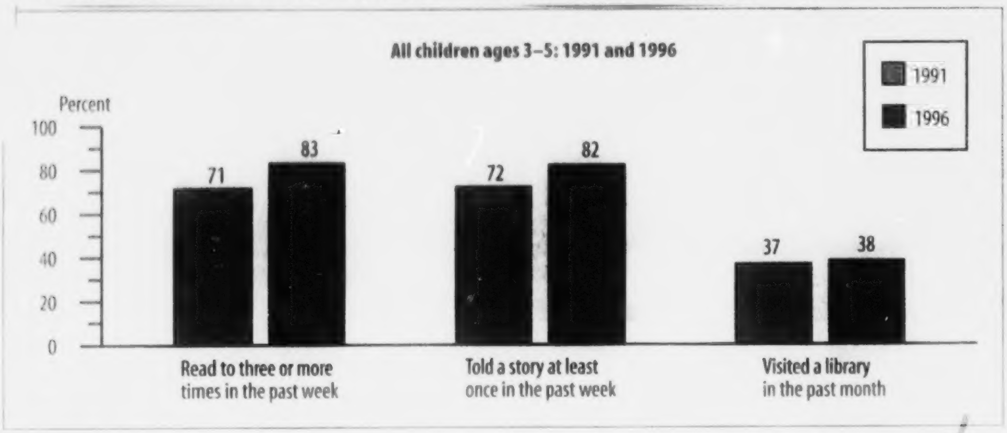
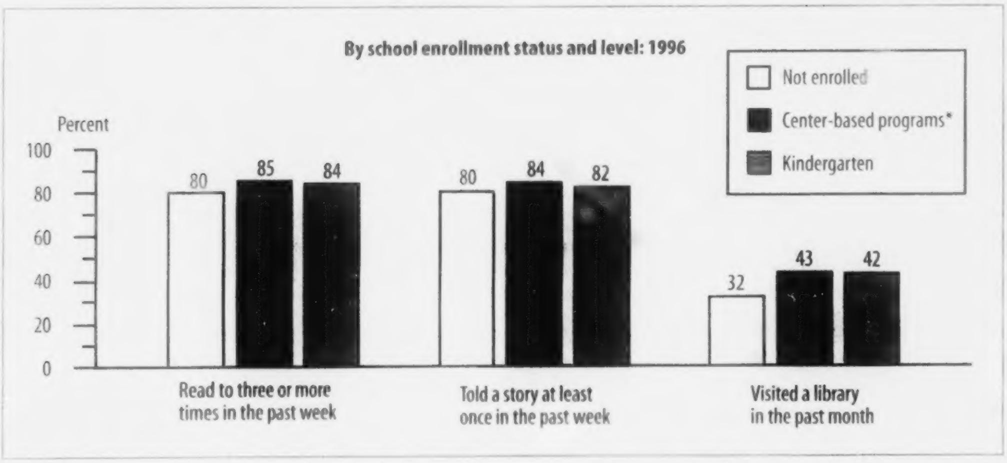
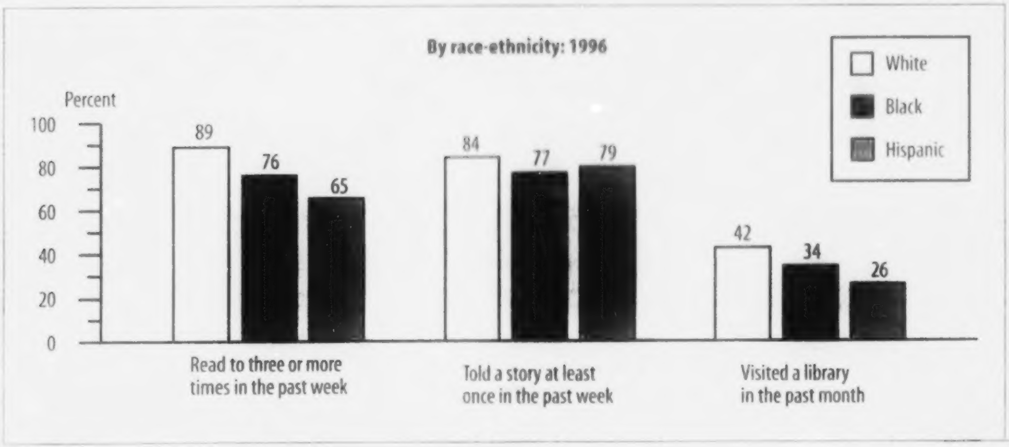
Percentage of children ages 3–5 who participated in various literacy activities with a parent or family member


All children ages 3–5: 1991 and 1996


By school enrollment status and level: 1996


By race-ethnicity: 1996

*Center-based programs include Head Start, nursery school, and prekindergarten.

NOTE: This analysis includes children ages 3–5 who were not enrolled in first grade.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1991 (Early Childhood Education File) and 1996 (Parent and Family Involvement in Education File).

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ELEMENTARY/SECONDARY EDUCATION

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The NAEP 1998 Reading Report Card for the Nation

Patricia L. Donahue, Kristin E. Voelkl, Jay R. Campbell, and John Mazzeo

This article was originally published as the Executive Summary of the Report Card of the same name. The sample survey data are from the NAEP 1998 Reading Assessment.

The National Assessment of Educational Progress (NAEP) is the nation's only ongoing survey of what students know and can do in various academic subject areas. Authorized by Congress and administered by the National Center for Education Statistics in the U.S. Department of Education, NAEP regularly reports to the public on the educational progress of students in grades 4, 8, and 12. In 1998, NAEP conducted a national reading assessment of 4th-, 8th-, and 12th-grade students, and a state-by-state reading assessment of 4th- and 8th-grade students.

This report presents the results of the NAEP 1998 Reading Assessment for the nation. Results in 1998 are compared with those in 1994 and 1992. Students' performance on the assessment is described in terms of their average scores on a 0-to-500 scale and in terms of the percentage of students attaining three achievement levels: *Basic*, *Proficient*, and *Advanced*.

The achievement levels are performance standards, adopted by the National Assessment Governing Board as part of its statutory requirements. The levels are collective judgments of what students should know and be able to do for each grade tested. They are based on recommendations by broadly representative panels of classroom teachers, education specialists, and members of the general public.

As provided by law, the Commissioner of Education Statistics, upon review of a congressionally mandated evaluation of NAEP, has determined that the achievement levels are to be considered developmental and should be interpreted and used with caution. However, both the Commissioner and the Board believe that these performance standards are useful for understanding trends in student achievement. They have been widely used by national and state officials, including the National Education Goals Panel, as a common yardstick of academic performance.

In addition to providing average scores and achievement-level performance for the nation, this report provides results for subgroups of students defined by various background and contextual characteristics. A summary of major findings from the NAEP 1998 Reading Assessment is presented below.

Reading Scale-Score and Achievement-Level Results for the Nation

- Average reading scores increased for students in grades 4, 8, and 12. At the 4th and 12th grades, the national average score was higher in 1998 than in 1994. At the 8th grade, the national average score was higher in 1998 than in 1994 and 1992.
- While the national average reading score increased at all three grades in 1998, increased scores were not observed for all students. At grade 4, score increases were observed only among lower performing students. At grade 8, score increases were observed among lower and middle performing students. At grade 12, score increases were observed among middle and upper performing students; however, the score for lower performing 12th-graders was not as high in 1998 as it had been in 1992.
- Across the three grades (4, 8, and 12) in 1998, the percentages of students performing at or above the *Basic* level were 62, 74, and 77 percent; the percentages who performed at or above the *Proficient* level were 31, 33, and 40 percent; and the percentages who performed at the highest achievement level, *Advanced*, were 7, 3, and 6 percent.
- At grade 4, no significant changes since 1994 or 1992 were observed in the percentages of students attaining any of the achievement levels.
- At grade 8, a greater percentage of students performed at or above the *Basic* level and the *Proficient* level in 1998 compared with 1994 and 1992.
- At grade 12, a greater percentage of students performed at or above the *Proficient* level and the *Advanced* level in 1998 compared with 1994. The percentage of students at *Advanced* was also greater in 1998 than in 1992. Although the 1998 percentage of students at or above *Basic* was greater than that in 1994, it remained lower than the 1992 percentage.

Reading Results for Student Subgroups

Sex

- At all three grades in 1998, female students had higher average scale scores than their male peers, and the percentage of females attaining each of the reading achievement levels exceeded that of males.
- At grade 4, males had a higher average score in 1998 than in 1994; however, the average score of female fourth-graders remained unchanged. At grade 8, both male and female students had higher average scores in 1998 than in 1994 and 1992. At grade 12, an apparent increase was observed for both males and females between 1994 and 1998; however, the increase was not significant for male students. The average score for male 12th-graders in 1998 remained lower than that in 1992.

Race-ethnicity

- At all three grades in 1998, the average score for white students was higher than those for black, Hispanic, and American Indian students.
- At grade 4, the only significant increase among racial-ethnic groups was observed for black students, whose average score in 1998 was higher than in 1994. At grade 8, increases were evident for both white and black students; their average scores in 1998 were higher than in 1994 and 1992. At grade 12, increases were evident for both white and Hispanic students since 1994.

Parents' level of education

- Students in grades 8 and 12 were asked to indicate their parents' highest level of education. Consistent with past NAEP assessments, students in 1998 who reported higher levels of parental education had higher average scale scores.

- The average score of eighth-graders who reported the highest level of parental education—graduated from college—was higher in 1998 than in both 1994 and 1992. The average score of 12th-graders who reported the lowest level of parental education—did not finish high school—was lower in 1998 than in 1992.

Regions of the country

- The 1998 results by region indicated that fourth- and eighth-graders in the Northeast and Central regions outperformed their counterparts in the Southeast and West. Among 12th-graders, students in the Southeast had lower scores than students in the other three regions. Also among 12th-graders, students in the Central region outperformed students in the West region.
- An examination of results for students within the four regions—Northeast, Southeast, Central, and West—reveals four changes across the assessment years. In the Northeast, the 1998 average score for eighth-graders was higher than in 1992, and fourth-graders showed an increase between 1994 and 1998. In the Southeast, eighth-graders had a higher average score in 1998 than in 1994 and 1992. And for 12th-graders in the Central region, the 1998 average score was higher than the 1994 average score.

Type of location

- In 1998, fourth- and eighth-graders in central city schools had lower average scores than their counterparts in rural or small town schools and urban fringe or large town schools. Also, eighth-graders in rural or small town schools had lower average scores than their counterparts in urban fringe or large town schools. No significant differences were observed among 12th-graders by type of location.
- Among students attending central city schools, eighth-graders had a higher average score in 1998 than in 1992. Among students attending schools in urban fringe or large town locations, 8th- and 12th-graders had higher average scores in 1998 than in 1994. In rural or small town schools, 12th-graders had a higher average score in 1998 than in 1994.

Free or reduced-price lunch program

- The NAEP 1998 Reading Assessment collected information on student eligibility for the federally funded free or reduced-price lunch program that provides children near or below the poverty line with nourishing meals. At all three grades, students who were eligible for the free or reduced-price lunch program had lower average reading scores than students who were not eligible for the program.

Type of school

- Consistent with past NAEP reading assessments, the 1998 results indicated that students attending nonpublic schools had higher average scale scores than their counterparts attending public schools.
- At grades 8 and 12, there was an increase between 1994 and 1998 in the average scores of students attending public schools. For eighth-grade public school students, the 1998 average was also higher than the 1992 average. While there was no significant change at any grade in the average score for all nonpublic schools, eighth-graders attending nonpublic Catholic schools had an average score in 1998 that was higher than in 1992.

School and Home Factors Related to Reading Performance

Pages read for school and homework

- In 1998, at all three grades assessed, students who reported reading more pages daily in school and for homework had higher average scale scores than students who reported reading fewer pages daily.
- The 1998 results indicated that students in grades 8 and 12 were reading more pages each day for school and for homework than in 1994.

Explain understanding and discuss interpretations

- Eighth- and 12th-grade students reported on how often they were asked to explain their understanding and discuss interpretations of their reading. At both grades, a positive relationship was observed between these instructional activities and student reading performance. Students who reported being asked by their teachers to explain their understanding or discuss interpretations at least once a week had higher average scores in 1998 than their classmates who reported doing so less than weekly.

- At grade 8, students' reports in 1998 indicated an increase in the frequency of both of these activities since 1994 and 1992. Twelfth-graders' reports indicated an increase since 1994 in the frequency of being asked to explain their understanding.

Writing long answers in response to reading

- At all three grades, a positive relationship between student reading performance and writing long answers to questions on tests and assignments that involved reading is generally supported by findings from the 1998 NAEP assessment. Students who reported engaging in this activity on a weekly or a monthly basis had higher average scores than students who reported doing so only once or twice a year, or hardly ever. At the 12th grade, students who reported doing such writing at least once or twice a week demonstrated the highest reading performance.
- Increases since 1994 in the frequency of this activity were indicated in the 1998 reports of fourth- and eighth-graders.

Reading self-selected books in school

- Fourth-grade students who reported that their teachers gave them time to read books of their own choosing on a daily basis had a higher average score than their peers who reported being given time to do so less often. However, at grades 8 and 12, this activity did not have a positive relationship with average scores.
- Students' reports in 1998 indicated an increase since 1994 in the frequency of this activity for 4th-graders, while the reports of 8th- and 12th-graders indicated an increase since 1992.

Discussing studies at home

- At all three grades in 1998, students who reported at least weekly home discussions about their studies had higher average scores than students who reported discussing their studies less frequently. At the 8th and 12th grades, having such discussions almost every day was associated with the highest average scores.
- Students' reports in 1998 indicated little change across assessment years in the percentages of students discussing their studies at home more or less frequently.

Talking about reading with family or friends

- At all three grades in 1998, students who reported talking about their reading activities with family or friends once or twice a week, or at least monthly, had higher average scores than students who reported doing so rarely or never.
- At grades 8 and 12, students' reports in 1998 indicated that they were talking about their reading activities less frequently in comparison to their reports in 1992.

Television viewing

- At all three grades in 1998, students who reported watching 3 or fewer hours of television each day had higher average scores than students who reported watching more television.
- Results of the 1998 assessment are encouraging in that they indicate decreases since 1994 in the amount of time students spend watching television each day.

Data source: The National Assessment of Educational Progress (NAEP) 1998 Reading Assessment.

For technical information, see the complete report:

Donahue, P.L., Voelkl, K.E., Campbell, J.R., and Mazzeo, J. (1999). *The NAEP 1998 Reading Report Card for the Nation* (NCES 1999–459).

For additional details about NAEP 1998 methodology, see

National Center for Education Statistics (forthcoming). *NAEP 1998 Technical Report.*

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To obtain the complete report (NCES 1999–459), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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The NAEP 1997 Arts Report Card: Eighth-Grade Findings From the National Assessment of Educational Progress

Hilary R. Persky, Brent A. Sandene, and Janice M. Askew

This article was originally published as the Executive Summary of the Report Card of the same name. The sample survey data are from the NAEP 1997 Arts Assessment.

The last several years have seen a growing resolve among educators and policymakers to assure the place of a solid arts education in the nation's schools. There are many reasons for this resolve, but certainly among the most important is the contribution the arts make to the quality of education. As stated in the Improving America's Schools Act of 1994, "The Congress finds that the arts are forms of understanding and ways of knowing that are fundamentally important to education."[1]

For more than 25 years, the National Assessment of Educational Progress (NAEP) has reported on the knowledge and skills of children in the United States. If policymakers, educators, and concerned citizens are to reform and improve the U.S. educational system to ensure that students receive a solid arts education, they need valid and reliable information about the arts skills and abilities of our nation's students. As the nation's only ongoing survey of students' educational progress, NAEP is an important resource for understanding what students know and can do. NAEP assessments have explored students' abilities in a range of subject areas, including reading, science, U.S. history, and mathematics. Based on assessment results, NAEP reports levels of student achievement and the instructional, institutional, and demographic variables associated with those levels of achievement.

In 1997, NAEP conducted a national assessment in the arts at grade 8. The assessment included the areas of music, theatre, and visual arts. (Though an assessment was developed for dance, it was not implemented because a statistically suitable sample could not be located.) For each of these arts areas, this *Report Card* describes the achievement of eighth-graders within the general population and in various subgroups. Taken with the information provided about instructional and institutional variables, this report gives readers a context for evaluating the status of students' learning in the arts.

Readers should note that this report is intended to be read with a CD-ROM (Persky, Sandene, and Askew 1999). The CD features the complete text of the report, as well as more examples of student responses to assessment exercises.

The NAEP Arts Education Assessment Framework

The arts assessment was designed to measure the content specifications described in the NAEP *Arts Education Assessment Framework* (National Assessment Governing Board 1994). The central principle underlying the arts framework is that dance, music, theatre, and visual arts are crucial components of a complete education. The arts have a unique capacity to integrate intellect, emotions, and physical skills in the creation of meaning. According to the framework, the teaching of the arts will, at its best, emphasize Creating and Performing works of art as well as studying and analyzing existing works. Thus, meaningful arts assessments should be built around three arts processes: Creating, Performing, and Responding.

- *Creating* refers to expressing ideas and feelings in the form of an original work of art; for example, a dance, a piece of music, a dramatic improvisation, or a sculpture.
- *Performing* refers to performing an existing work, a process that calls upon the interpretive or re-creative skills of the student.
- *Responding* refers to observing, describing, analyzing, and evaluating works of art.

In order to capture the processes of Creating, Performing, and Responding, the arts assessment exercises included the following:

- Authentic tasks that assessed students' knowledge and skills in Creating and Performing music and theatre, and Creating in visual arts. Among other activities, students were to sing, create music, create and perform dances, act in theatrical improvisations, and work with various media to create works of visual art. Students were also to evaluate their own work in written form.
- Constructed-response and multiple-choice questions that explored students' abilities to describe, analyze, interpret, and evaluate works of art in written form.

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[1] Improving America's Schools Act of 1994, H.R. 6, 103rd Cong., 2nd Sess. (1994).

The Arts Assessment Student Samples

The NAEP 1997 Arts Assessment was conducted nationally at grade 8.[2] For music and visual arts, representative samples of public and nonpublic school students were assessed. A special sample was assessed for theatre.

The decision to assess a special sample of students for theatre was made based on the results of the 1995 NAEP field tests in all four arts at grades 4 and 8. Field-test data indicated that small percentages of students were exposed to comprehensive theatre programs in the nation's schools. (Eleven percent of students who were part of the random sample taking the 1997 visual arts assessment had some exposure to theatre education.)

To ensure rich results about what students who have been exposed to theatre in school know and can do, the National Center for Education Statistics (NCES), the National Assessment Governing Board (NAGB), members of the arts community, and Educational Testing Service (ETS) decided that a "targeted" sample of students should take the theatre assessment. Schools offering at least 44 classroom hours of a theatre course per semester, and offering courses including more than the history or literature of theatre, were identified. Students attending those schools who had accumulated 30 hours of theatre classes by the end of the 1996–97 school year were selected to take the theatre assessment.

In this *Report Card*, discussions of student performance on the theatre assessment refer to this special sample of students, not to the nationally representative sample of students who took the music and visual arts assessments.

Also based on the results of the 1995 arts field test, a decision was made to have a targeted sample of students take the dance assessment. (Results from the 1997 arts assessment indicate that 3 percent of students in the national random sample received dance instruction in school three or four times a week.) The NAEP staff responsible for drawing NAEP samples and obtaining participation worked with the arts community to set criteria for the dance student sample and then to locate schools offering comprehensive dance programs.[3] However, after considerable effort, a sample suitable in size and national distribution could not be found.

So that readers will have a picture of the performance assessment in dance that was developed based on the arts framework, the dance exercises that were intended for administration to students are included in this *Report Card*.

Student Achievement

In this report, student performance on the arts assessment is presented in several ways. Overall summaries of results for Creating, Performing, and Responding in terms of student- and school-reported background variables are featured. For theatre, student results are also discussed in terms of teacher-reported background variables.[4]

The overall summaries of results deal with Creating, Performing, and Responding separately. Responding results within music, theatre, and visual arts are grouped for summarization on three NAEP arts Responding scales, each of which ranges from 0 to 300. Average Responding scale-score results are presented by demographic and "opportunity to learn" variables—such as frequency of arts instruction, arts facilities, and classroom activities in the arts—based on student-, school-, and, in the case of theatre, teacher-reported background information. Creating and Performing results are not summarized using a standard NAEP scale. Instead, these results are presented as average percentages of the maximum possible score on exercises, in relation to demographic and opportunity-to-learn variables. (These average scores represent the overall mean percentage that students earned of the possible number of points for the components of Creating and Performing tasks.)

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[2] The arts assessment was administered at grade 8 only because, due to budget constraints, NAEP could not comprehensively assess the arts at grades 4, 8, and 12. (This shortfall also affected other NAEP subjects, such as math and science.) The arts community was widely consulted and recommended that the assessment be administered at one grade, grade 8. In this way, a full assessment of the arts framework, with authentic Creating, Performing, and Responding exercises, could be administered in the different arts.

[3] Students who would have taken the dance assessment attended schools that offered at least 17 classroom hours of a dance course per semester. These students had to be currently enrolled in dance classes or had to have taken dance course work in the last year. Coursework needed to include more than dance in athletic contexts—for example, dancersize or dance team—and more than aesthetics or criticism.

[4] A teacher questionnaire was administered only for the theatre assessment because of the special nature of the theatre sample. Students who took the music and visual arts assessments were a random national sample. These students attended schools where music and visual arts may be taught by itinerant teachers or part-time staff. By contrast, those who took the theatre assessment attended schools that featured theatre as a substantial part of the curricula. This increased the chance of teacher response to the questionnaire.

Major Findings in Music, Theatre, and Visual Arts for the Nation

Music

- *Responding.* Most students could select appropriate functional uses for different types of music and could partially justify their choices in writing. For example, 79 percent of students could identify an excerpt from Brahms' "Lullaby" as being suitable for putting a child to sleep and could provide some justification for their choice.
- *Responding.* Students showed some skills in critiquing simple music performances. For example, 45 percent of students were able to identify and describe two errors, and 16 percent of students were able to identify and describe three errors in a performance of "Michael Row the Boat Ashore."
- *Creating.* Students showed limited abilities in creating music. When asked to create a rhythmic embellishment based on the first two phrases of "Ode to Joy," 24 percent of students were able to perform music that was scored "Adequate" or above in overall appeal and interest.
- *Performing.* Students' singing abilities across various aspects of musical performance were mixed. When singing the song "America" with a taped accompaniment, 78 percent of students were able to sing the rhythms of the melody with generally acceptable rhythmic ensemble and accuracy. In contrast, 35 percent of the students sang almost all of the pitches of the melody accurately, and 24 percent sang with a tone quality considered appropriate in most sections of the music.

Theatre

- *Responding.* More students could describe feelings conveyed by actors in dramatic performances, or what actors did with their faces, voices, or bodies, than could explain how actors used their faces, voices, and bodies to convey character and feeling. For example, 41 percent of students could describe the voice used by an actor in a radio play. Fourteen percent were able to describe ways the actor's voice conveyed his character.
- *Responding.* Students showed some knowledge of the technical elements of theatre. Sixty-five percent of students could offer reasonably accurate plans for how to create lighting effects for a scene in a Carson McCullers play. Fifty percent were able to draw ground plans for a set of that scene that showed some understanding of a theatre space. Seventeen percent of students were able to draw complete and essentially error-free ground plans.
- *Creating and Performing* (combined category). Students' abilities to combine dialogue, action, and expression to communicate meaning to an audience varied across Creating–Performing tasks. Sixty-seven percent of students demonstrated this ability most of the time in an improvisational task, and 2 percent did all the time. In a cold reading of a script, 30 percent of students demonstrated the ability to convey meaning (if only generally) most of the time, and 6 percent did all the time.

Visual arts

- *Responding.* Some students were able to accurately describe some aspects of artworks. For example, 29 percent of students could describe three ways in which Raphael created a sense of near and far in a Madonna and Child painting.
- *Responding.* Students' abilities to place artworks in historical or cultural contexts varied. For example, 55 percent of students could identify which of four works was a work of contemporary Western art, and 25 percent could identify which of four works contributed to Cubism.
- *Responding.* Generally, linking aesthetic features of artworks explicitly with meaning seemed challenging for students. Four percent of students could write a brief essay linking a full analysis of technical aspects of a Schiele self-portrait to an interpretation, while 24 percent were able either to link sparser technical analyses to interpretations or to analyze technical aspects without an interpretation.
- *Creating.* Students showed some ability to create specific, fully observed, and expressive two-dimensional artworks. One percent of students created expressive collages that showed a consistent awareness of qualities such as color, texture, and contrast. However, 42 percent were able to effectively use collage techniques in parts of their collages.
- *Creating.* Students seemed to find applying their knowledge and skills to three-dimensional tasks challenging. For example, 3 percent of students were

able to create freestanding sculptures out of plasticine and wire that skillfully combined shapes, details, and textures into an imaginative interpretation of kitchen utensils. Many more students (21 percent) created sculptures that were not freestanding, or showed some ability to realize an idea in an inventive, organized interpretation.

Major Findings for Students and Arts Learning in the Nation's Schools

- A large percentage of eighth-grade students attended schools in which music and visual arts were taught, in most cases by full-time or part-time specialists. Student access to theatre and dance instruction was more limited.
- Most students attended schools in which instruction following district or state curricula was offered in the subjects of music and visual arts, but not in theatre or dance.
- Most visual arts and music instruction took place in school facilities dedicated to that subject. Where available, dance was usually taught in gymnasiums. Where available, theatre instruction usually took place on a stage or in a room dedicated to theatre teaching.

Major Creating, Performing, and Responding Findings for Student Subgroups

- In the NAEP arts assessment, females consistently outperformed their male peers.
- White and (where sample sizes were large enough) Asian students had higher average scores in Creating, Performing, and Responding than did black or Hispanic students in some instances. However, music Creating scores of black and white students were comparable, as were music Creating and Performing scores among black, Hispanic, and Asian students.
- Consistent with past NAEP assessments, higher levels of parental education were associated with higher levels of student performance in the arts assessment.[5]

Cautions in Interpretations

The reader is cautioned against interpreting the relationships among subgroup averages or percentages as causal relationships. Average performance differences between two groups of students may result in part from socioeconomic and other factors. For example, differences among racial-ethnic subgroups are almost certainly associated with a broad range of socioeconomic and educational factors not discussed in this report.

Additionally, readers should avoid making comparisons in scores across arts areas. The scales in each subject are independent, and the same score in two arts areas may not mean the same things in terms of student achievement.

Finally, readers should note that NAEP administered assessments in music and visual arts in 1974 and 1978. However, the assessment results for 1997 examined in this report are not comparable with the results from the earlier assessments, because of considerable changes in the nature of the 1997 assessment, based on the recently created *Arts Education Assessment Framework*.

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To obtain the complete report (NCES 1999–486) or the CD-ROM version (NCES 1999–485), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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[5] Note that the student samples for music and visual arts differed from the theatre sample. While students who took the music and visual arts assessments were a random national sample, those that took the theatre assessment were selected from students who had some theatre education.

Do Gatekeeper Courses Expand Education Options?

Robert Atanda

This article was originally published as a Statistics in Brief report of the same name. The sample survey data are from the National Education Longitudinal Study of 1988 (NELS:88). Technical notes, standard error tables, and definitions from the original report have been omitted.

Introduction

Enrollment in advanced-level math and foreign language courses while in high school is not always an option for most students. It requires advance planning by both students and parents. For example, parents who have high expectations for their children's education realize that many advanced-level courses require prerequisites. Thus, planning and enrolling in the necessary foundation courses, such as algebra and foreign language during eighth grade, can place a student higher in the math and foreign language pipelines and may eventually lead to decisions, such as applying to college, that are highly related to attending a college (Berkner and Chavez 1997). According to the U.S. Department of Education's white paper, "Mathematics Equals Opportunity," students who plan to take advanced mathematics courses during high school and begin to study algebra during middle school are at a clear advantage (U.S. Department of Education 1997). With this potential advantage in mind, this report examines the relationship between applying to a 4-year college or university and enrollment in algebra or a foreign language as an eighth-grader, in combination with high school course-taking patterns (math and foreign language). For this analysis, pipeline-level variables were created for math and foreign language based on high school coursework.

The data in this report were obtained from the base-year and second follow-up surveys of the National Education Longitudinal Study of 1988 (NELS:88). NELS:88 began with a sample of 1,052 schools and 24,599 eighth-graders. These eighth-grade cohort members were resurveyed in 1990 and 1992, while in high school, to determine their educational progress as well as their school, work, and community experiences. Data from the base-year (1988) and second follow-up (1992) surveys were used in this report. The results of this report—based on data from 12,053 of the students from the original cohort—apply to students who were eighth-graders in 1988 and graduated from high school in 1992.

Highlights include the following:

- *Enrollment in gatekeeper courses, such as algebra and foreign language, in eighth grade helps students reach higher levels in the mathematics and foreign language pipelines.* For example, students who enrolled in algebra as eighth-graders were more likely to reach high-level math courses (e.g., algebra 3, trigonometry, or calculus) in high school than those students who did not enroll in algebra as eighth-graders.
- *Reaching higher levels in the mathematics and foreign language pipelines, combined with enrollment in eighth-grade algebra or eighth-grade foreign language, provides students with an advantage.* For example, students who enrolled in algebra as eighth-graders *and* completed a high-level math course during high school were more likely to apply to a 4-year college than those students who did *not* enroll in algebra as eighth-graders but who also completed a high-level math course during high school.

For many students, a college education can be very difficult to obtain. For others, though, the process is easier. They are able to apply, attend, and graduate with a postsecondary degree. Why is the process easier for these students? One explanation may be that these students receive an early start in core subjects, such as math and foreign language. Taking algebra or a foreign language in the eighth grade may help contribute to students enrolling in high-level math and foreign language courses during high school, which is associated with applying to a 4-year college. In the next two sections, this report examines the relationships between course-taking behavior in math and foreign language, and application to college.

Enrollment in Algebra and Foreign Language During Eighth Grade

In America's education system, math and foreign language are known as sequential subjects. Usually, students do not enroll in calculus before they complete algebra, geometry, trigonometry, or precalculus; nor do they complete French IV with a passing grade and then enroll in French I. It is typical for students to begin in the lower level courses before enrolling in the more advanced classes. Due to the sequential nature of the subjects, it is advantageous for students to initiate these course sequences before high school. Coursework in algebra and a foreign language during eighth grade enables students to reach higher levels in math and foreign language during high school.

Figure 1 presents information about 1988 eighth-grade students who enrolled in an algebra course that met at least once a week. Thirty-seven percent of those 1988 eighth-grade students who enrolled in algebra completed a high-level math course (algebra 3, trigonometry, calculus, etc.) by 1992, compared with 29 percent of those eighth-grade students who did not take algebra. This same pattern is true for foreign language. Twenty-five percent of those 1988 eighth-graders who enrolled in a foreign language in eighth grade completed a high-level foreign language course (at least .5 Carnegie unit of 12th-grade language)* by 1992, compared with 10 percent of those students who did not enroll in a foreign language as eighth-graders.

Enrolling in foreign language and math courses during eighth grade is only one step toward academic advancement; completing high-level classes in these courses is also an important step. Table 1 provides additional information about students at different levels in the math and foreign language pipelines.

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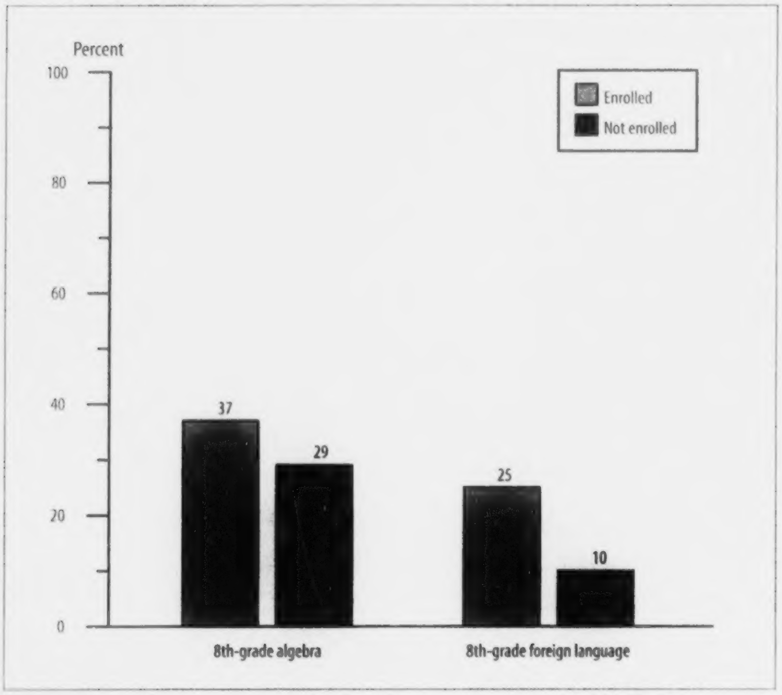
*One Carnegie unit is equivalent to a 1-hour class that meets 5 days a week for 1 school year, and 12th-grade language is equivalent to the fourth level of a particular language (e.g., French IV).

Figure 1.—Percentage of 1992 high school graduates who completed high-level mathematics and foreign language courses, by enrollment status in algebra and foreign language as eighth-graders



NOTE: High-level math refers to any combination of one or more of the following subjects: trigonometry, algebra 3, statistics, calculus, probability, or analytical geometry. High-level foreign language indicates that the student completed at least .5 Carnegie unit of 12th-grade language.

SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

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Table 1. — Percentage of 1992 high school graduates at each level in the math and foreign language pipelines, by selected characteristics

	Math[1]			Foreign language[2]		
	Low	Middle	High	Low	Middle	High
Total	22.6	46.1	31.3	27.9	58.4	13.7
Sex						
Male	24.4	44.6	31.0	32.0	56.5	11.4
Female	20.9	47.6	31.6	24.2	60.0	15.8
Race-ethnicity						
Asian	11.7	39.5	48.9	12.6	61.4	26.0
Hispanic	28.6	49.2	22.2	35.0	51.4	13.8
Black, non-Hispanic	32.2	48.1	19.8	38.6	55.9	5.6
White, non-Hispanic	20.2	45.5	34.3	26.0	59.4	14.5
Socioeconomic status (SES)[3]						
Low	44.2	45.2	10.6	48.5	43.9	7.6
Middle	20.9	50.9	28.2	30.4	59.7	10.0
High	6.8	37.5	55.7	14.2	63.3	22.6
Enrolled in 8th-grade algebra						
Yes	18.8	43.9	37.3	31.8	61.6	6.7
No	23.7	47.2	29.1	39.1	50.6	10.4
Enrolled in 8th-grade language						
Yes	22.7	50.8	26.5	18.6	56.2	25.2
No	23.4	60.1	16.6	30.6	59.8	9.6
Males who enrolled in 8th-grade algebra						
Yes	11.3	41.7	47.1	20.0	62.8	17.2
No	14.7	50.0	35.3	30.0	60.7	9.4
Males who enrolled in 8th-grade language						
Yes	8.5	40.4	51.2	17.0	57.6	25.5
No	14.9	49.2	35.9	29.6	62.5	7.9
Females who enrolled in 8th-grade algebra						
Yes	8.1	46.6	45.3	15.8	62.0	22.1
No	11.0	51.7	37.3	21.3	64.2	14.5
Females who enrolled in 8th-grade language						
Yes	8.1	42.4	49.5	10.4	59.5	30.2
No	10.6	53.4	36.0	22.1	65.4	12.6
Low-level SES students who enrolled in 8th-grade algebra						
Yes	11.3	41.7	47.1	20.0	62.8	17.2
No	14.7	50.0	35.3	30.0	60.7	9.4
Middle-level SES students who enrolled in 8th-grade algebra						
Yes	11.2	49.5	39.3	20.3	67.0	12.7
No	12.3	55.4	32.3	28.3	62.2	9.4
High-level SES students who enrolled in 8th-grade algebra						
Yes	2.3	30.7	67.0	9.9	59.4	30.8
No	5.5	38.2	56.3	14.7	67.2	18.1
Low-level SES students who enrolled in 8th-grade language						
Yes	8.5	40.4	51.1	17.0	57.6	25.5
No	14.9	49.2	35.9	29.6	62.5	7.9
Middle-level SES students who enrolled in 8th-grade language						
Yes	10.3	53.4	36.3	18.4	64.7	17.0
No	12.4	53.2	34.4	27.3	63.8	9.0
High-level SES students who enrolled in 8th-grade language						
Yes	2.8	25.1	72.1	6.0	54.0	40.0
No	4.9	41.8	53.3	16.0	69.5	14.5

[1] High-level math refers to trigonometry, algebra 3, statistics, calculus, probability, and analytical geometry. Middle-level math refers to algebra 1 and geometry. Low-level math refers to pre-algebra and informal geometry.

[2] High-level foreign language indicates student completed at least .5 Carnegie unit of 12th-grade language. Middle-level foreign language indicates student completed at least .5 Carnegie unit of 10th-grade language. Low-level foreign language indicates student completed anything less than .5 Carnegie unit of 10th-grade language.

[3] SES (F2SES1Q): low (quartile 1), middle (quartiles 2 and 3), high (quartile 4).

SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

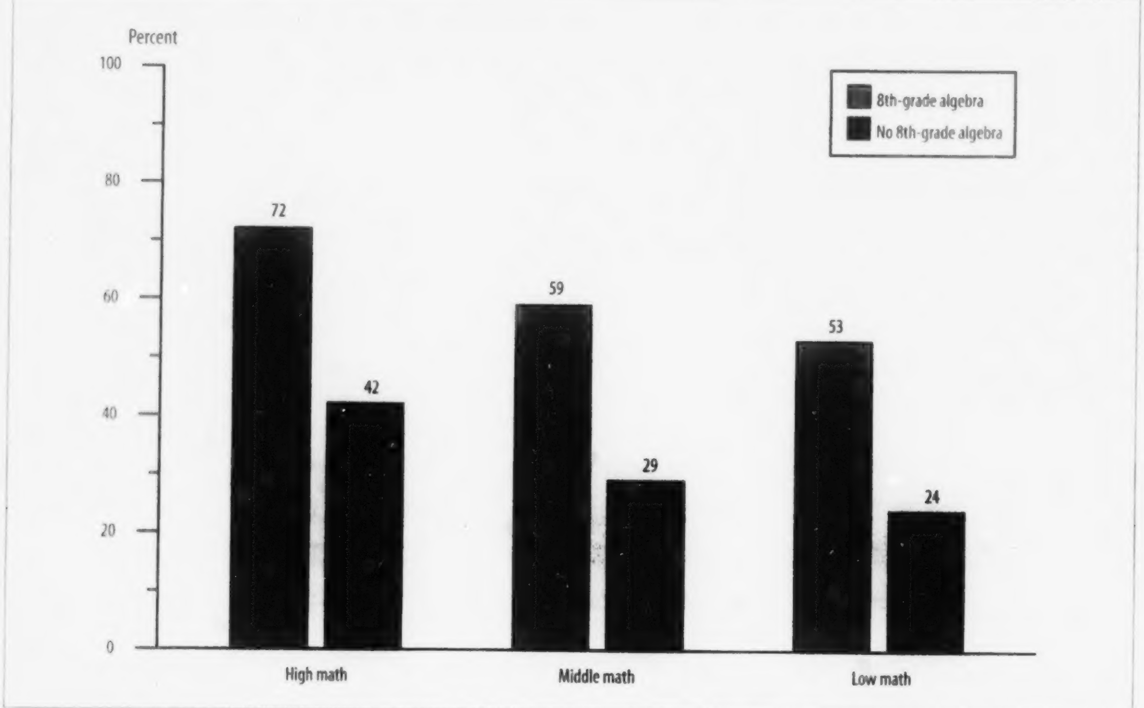
Applying to College

Generally, completing an application is a required step for admission and subsequent enrollment in a 4-year college or university. This section presents data showing that eighth-grade enrollment in algebra or foreign language is associated with postsecondary education even when controlling for high school course taking. Enrolling in algebra or a foreign language during eighth grade, in addition to completing higher levels in math or foreign language, is associated with this measure of academic success.

As shown in figure 2a, 12th-grade students who enrolled in algebra as eighth-graders were more likely to apply to a 4-year college at each level of high school math course taking (72 percent of students completing high-level math, 59 percent of those completing middle-level math, and 53 percent of those finishing low-level math) than their counterparts at each level who did not enroll in algebra in eighth grade (42, 29, and 24 percent, respectively). Algebra in eighth grade is also advantageous when one compares those students who only completed a middle- or low-level math course with those who did not take eighth-grade algebra, but completed a high-level math course during high school. Twelfth-grade students who enrolled in algebra as eighth-graders and who only completed a middle- or low-level math course during high school were more likely to apply to a 4-year college (59 and 53 percent for middle- and low-level math, respectively) than those students who did not enroll in algebra as eighth-graders, but who completed a high-level math course during high school (42 percent).

The same patterns are evident with foreign language course taking. Figure 2b shows that 12th-grade students who enrolled in a foreign language in eighth grade were more likely to apply to a 4-year college at each level of high school foreign language course taking (78 percent of students completing high-level foreign language, 67 percent of those completing middle-level foreign language, and 50 percent of those finishing low-level foreign language)

Figure 2a.—Percentage of 1992 high school graduates who applied to a 4-year college, by enrollment in eighth-grade algebra and highest level of high school math completed



NOTE: High-level math refers to trigonometry, algebra 3, statistics, calculus, probability, and analytical geometry. Middle-level math refers to algebra 1 and geometry. Low-level math refers to pre-algebra and informal geometry.

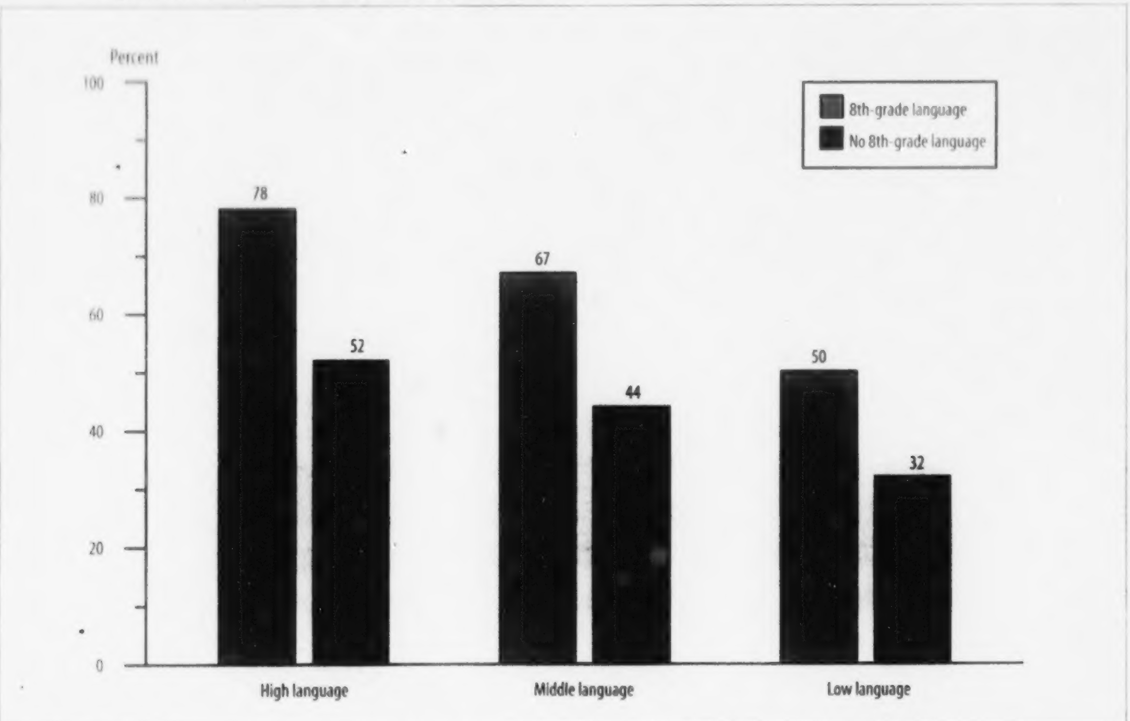
SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

than their counterparts at each level who did not enroll in a foreign language in eighth grade (52, 44, and 32 percent, respectively). Moreover, 67 percent of 12th-grade students who enrolled in a foreign language as eighth-graders and completed a middle-level language course (at least .5 Carnegie unit of 10th-grade language) during high school applied to a 4-year college, compared with 52 percent of those students who did not enroll in a foreign language as eighth-graders, but who completed a high-level foreign language course during high school.

This section has emphasized the importance of enrolling in eighth-grade algebra or foreign language. Not only is it beneficial to reach high levels in math and foreign language during high school, but, as represented by the results, it is also important to start taking these courses before high school.

For those students who plan to attend a 4-year college, it is important to note that most 4-year postsecondary schools require students to meet basic requirements in both math and a foreign language during high school. The aforementioned results indicate that enrolling in either algebra or a foreign language in the eighth grade is beneficial to students applying to a 4-year college; however, those students who enroll in both eighth-grade algebra and a foreign language are at an even greater advantage. As shown in table 2, 12th-grade students who enrolled in both algebra and a foreign language as eighth-graders were more likely to apply to a 4-year college than those students who enrolled in only one or none of these courses during eighth grade (78 percent of students who enrolled in both algebra and a foreign language, 56 percent of students who enrolled in either algebra or a foreign language, and 29 percent of students who enrolled in neither algebra nor a foreign language).

Figure 2b.—Percentage of 1992 high school graduates who applied to a 4-year college, by enrollment in eighth-grade foreign language and highest level of high school foreign language completed



NOTE: High-level foreign language indicates student completed at least .5 Carnegie unit of 12th-grade language. Middle-level foreign language indicates student completed at least .5 Carnegie unit of 10th-grade language. Low-level foreign language indicates student completed anything less than .5 Carnegie unit of 10th-grade language.

SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

Table 2.—Percentage of 1992 high school graduates who applied to a 4-year college, by levels reached in the math and foreign language pipelines and enrollment in eighth-grade foreign language or algebra

	Applied to 4-year college	
	No	Yes
Enrolled in 8th-grade algebra		
Math[1]		
Low	46.6	53.4
Middle	40.7	59.3
High	27.9	72.1
Did not enroll in 8th-grade algebra		
Math		
Low	75.7	24.3
Middle	70.7	29.3
High	58.4	41.6
Enrolled in 8th-grade language		
Foreign language[2]		
Low	49.6	50.4
Middle	32.8	67.2
High	21.5	78.5
Did not enroll in 8th-grade language		
Foreign language		
Low	68.1	31.9
Middle	56.3	43.7
High	48.1	51.9
Enrolled in 8th-grade language and algebra	22.0	78.0
Enrolled in 8th-grade algebra, but not language OR Enrolled in 8th-grade language, but not algebra	44.3	55.7
Did not enroll in 8th-grade language or algebra	70.6	29.4

[1] High-level math refers to trigonometry, algebra 3, statistics, calculus, probability, and analytical geometry. Middle-level math refers to algebra 1 and geometry. Low-level math refers to pre-algebra and informal geometry.

[2] High-level foreign language indicates student completed at least .5 Carnegie unit of 12th-grade language. Middle-level foreign language indicates student completed at least .5 Carnegie unit of 10th-grade language. Low-level foreign language indicates student completed anything less than .5 Carnegie unit of 10th-grade language.

SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

Conclusion

Not all students who take higher level math or foreign language courses in high school apply to 4-year colleges or universities during their senior year in high school. However, students who enroll in algebra or a foreign language during eighth grade are more likely to pursue a 4-year postsecondary education at the end of high school. This is true regardless of the level of math or foreign language attained by these students. For any student who aspires to obtain a postsecondary degree, it is useful for the planning process to commence as early as eighth grade or even before. The results of this study are useful for students who plan to attend college and their parents in determining some of the factors that are associated with attaining academic success.

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Data sources: The National Education Longitudinal Study of 1988 (NELS:88), base year (1988), second follow-up (1992), and transcript study.

For technical information, see the complete Statistics in Brief:

Atanda, R., *Do Gatekeeper Courses Expand Education Options?* (NCES 1999–303).

For additional details about NELS second follow-up methodology, see

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The Civic Development of 9th- Through 12th-Grade Students in the United States: 1996

Richard G. Niemi and Christopher Chapman

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The data are from the 1996 National Household Education Survey (NHES).

This report provides an extensive picture of factors often thought to be associated with promoting good citizenship among youth. In particular, it focuses on the civic development of 9th- through 12th-grade students. Broadly speaking, student characteristics, family influences, the role of schools, media factors, and the possible benefits of participation in community service activities are related to civic development. Initial analyses study how these factors relate to civic development in isolation from one another, while the latter part of the report studies their relationship to civic development in conjunction with one another.

Civic development, as defined in this report, consists of five dimensions: political knowledge, attention to politics, political participation skills, political efficacy, and tolerance of diversity. Information about civic development was collected from a nationally representative sample of 4,212 9th- through 12th-grade students and their parents and is based on responses to more than a dozen questions. Both the students and their parents were given a short political knowledge quiz. They were also asked how often they paid attention to politics through various news media and how often they interacted with one another on political issues garnered from news media. Political participation skills were tapped through questions asking how confident respondents felt about writing letters to officials or speaking at public meetings. Responses to questions about how well respondents understood politics and how much say their families had in government were used to tap political efficacy. Tolerance of diversity was studied based on answers to questions about tolerating controversial books in public libraries and allowing speech against religion. The data were collected from January through April 1996 as part of the National Household Education Survey.

Some of the more important questions and relevant results presented in the report are summarized below.

Do Students and Their Parents Differ on Key Dimensions of Civic Development?

The answer to this question is yes for two of the dimensions of civic development under study. Parents tend to know more about politics than do students. For instance, 17 percent of parents were able to answer all five of the political knowledge questions correctly while only 8 percent of the students could do so. The knowledge disparity may be due in part to the fact that parents are more likely than students to pay attention to politics. More than one-third of parents, compared with only 1 in 10 students, read about the news almost every day; and parents are also more likely than students to watch or listen to the news.

The disparity in political knowledge scores is reflected in one of the political efficacy questions. Approximately 61 percent of parents believe they understand politics, compared with 55 percent of students. However, students are more likely to believe that their families have a say in government than are parents. There are no notable differences between parents and youth in terms of political participation skills or tolerance of diversity; 57 percent of both groups would allow a controversial book to be included in a public library.

Are Grade Level or Other Student Characteristics Related to Civic Development?

As students progress through the education system, they tend to have better civic development scores. A student's grade in school—controlling for other factors such as the student's race-ethnicity, activities, and family and school characteristics—is positively related to all dimensions of civic development. Students in higher grades are more likely to be knowledgeable about politics, pay attention to politics, trust their participatory skills, be politically efficacious, and be tolerant of diversity than are students in lower grades.

Other student characteristics tend to present a less consistent picture. For instance, when controlling for other factors, white students are generally more knowledgeable about politics than are minority students and are more tolerant of diversity in terms of allowing controversial books in a public library. Minority students are about as likely to trust in their participation skills as are white students and are more efficacious in terms of believing that their families have a say in what government does.

Does Attention to Politics Translate Into Higher Levels of Civic Development?

For the most part, the answer is yes. Those students who pay more attention to politics through the print media or television and radio tend to be more knowledgeable about politics. They also tend to have greater trust in their political participation skills and tend to be more efficacious, at least in terms of feeling as though they understand politics. One dimension of civic development not associated with attention to politics, however, is tolerance of diversity.

The relationships between attention to politics and civic development hold even after controlling for a large number of student characteristics, other student activities, and various family and school traits. Apart from suggesting that students should be encouraged to pay attention to politics, these results also suggest that the media may have a positive role to play in civic development.

What Types of Student Activities Are Associated With Higher Levels of Civic Development?

Both participation in student government and regular participation in community service activities are related to a number of dimensions of civic development. Those students who participate in student government tend to be more knowledgeable about politics, more confident in their participation skills, more confident that they understand politics, and more tolerant of public libraries carrying controversial books than students who do not participate in student government. These results hold even after controlling for student characteristics, other kinds of student activities, and family and school characteristics.

Many of the same relationships are found between civic development and regular participation in community service (35 hours or more during the school year). Generally, regular participants have higher levels of civic development than do students who participate less often or not at all. The only exceptions are that regular participants, while more likely than other students to have confidence in their ability to make statements at public meetings, are not more likely to have confidence in their ability to write the government nor more likely to tolerate controversial books in public libraries.

What Role Does the Family Play in Student Civic Development?

Much of the research of the 1960s and 1970s suggested that the family, or at least parents, had only limited influence on the civic development of students. Findings in this report provide a somewhat different picture. After controlling for a large number of other potential factors, parents' responses to given questions about civic development are positively related to students' responses to the same questions in almost every instance. Students of parents with high political knowledge scores tend to have high political knowledge scores, students of parents who regularly read the news also tend to read the news on a regular basis, and so forth. The only exception is for the question about writing to a government official.

Do Students at Public and Private Schools Have Similar Levels of Civic Development?

Of the 11 indicators of civic development used in the report, private school students score notably better on 4 indicators. After controlling for a host of other factors described above, private school students tend to have higher political knowledge scores, are more likely to have confidence in their ability to speak at public meetings, are more likely to feel as though they understand politics, and are more likely to accept the presence of controversial books in public libraries than are public school students. On the other indicators of civic development, no notable differences emerged between public and private school students.

Summary

This report fills a number of voids in research focusing on younger Americans and their civic development. Perhaps the biggest is simply the time lag between a series of studies conducted in the 1960s and early 1970s and the present. There have been few extensive studies of youth civic development since that time. Findings in this report suggest that the current generation of American youth may have different correlates of civic development than the youth of the 1960s and 1970s. For instance, earlier research suggests that parents play only a very limited role in youth civic development, but this report indicates that parents may now have a stronger influence on the civic development of youth.

Some of the differences that appear to exist between earlier research and this report on such issues as the relationship between parents and youth civic development may in part be due to the fact that this report focuses on students in grades 9 through 12. Much of the earlier research focused solely on 12th-grade or college students. However, results presented here indicate that there are important differences between students in higher and lower grades that deserve more attention.

The report also looks at the possible relationships between community service activity and civic development. While there have been many benefits accredited to community service, including higher levels of civic development, little research has been done to study the relationship between the two. Community service activity does appear to be associated with some components of civic development, such as increased political knowledge, increased confidence in the ability to speak at public meetings, and a stronger sense of understanding politics. It should be kept in mind, however, that community service in general does not seem to promote several factors associated with good citizenship.

For instance, there does not appear to be a correlation between community service per se and tolerance of diversity. It is important to explore the relationship between community service and civic development further, since data collected for this report do not allow for an analysis of different types of community service. If such factors as the type of activity the service entailed, who was assisted, who sponsored the service, and so on, are taken into account, community service might be more closely related to other dimensions of civic development.

Research on the topic of youth civic development has pointed to a number of agents that are typically related to civic development. These agents include the family, schools, and the media. Apart from these agents, student characteristics and activities have also been studied. Seldom have all of these agents, characteristics, and activities been studied at the same time. By simultaneously analyzing these factors, this report helps sort out their relative roles in the civic development of American youth.

Data sources: The following components of the 1996 National Household Education Survey (NHES): Youth Civic Involvement, and Parent and Family Involvement in Education and Civic Involvement.

For technical information, see the complete report:

Niemi, R.G., and Chapman, C. (1998). *The Civic Development of 9th- Through 12th-Grade Students in the United States: 1996* (NCES 1999–131).

For more details about survey methodology, see

Collins, M., Brick, J., Nolin, M., Vaden-Kiernan, N., and Gilmore, S. (1997). *National Household Education Survey of 1996: Data File User's Manual, Volumes III–V* (NCES 97–423, NCES 97–422, and NCES 97–421).

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Indicators of School Crime and Safety, 1998

Phillip Kaufman, Xianglei Chen, Susan P. Choy, Kathryn A. Chandler, Christopher D. Chapman, Michael R. Rand, and Cheryl Ringel

This article was originally published as the Highlights section of the report of the same name. The report is a joint effort of the Bureau of Justice Statistics (BJS) and the National Center for Education Statistics (NCES). The numerous data sources are listed at the end of this article.

Schools should be safe and secure places for all students, teachers, and staff members. Without a safe learning environment, teachers cannot teach and students cannot learn. Recent efforts by schools, local authorities, and the state and federal governments have prompted the nation to focus on improving the safety of American schools. It is the hope that all children will be able to go to and from school and be at school without fearing for their safety or the safety of their friends and teachers. Judging progress toward providing safer schools requires establishing good indicators on the current state of school crime and safety, and periodically monitoring and updating these indicators.

This report, the first in a series of annual reports on school crime and safety from the Bureau of Justice Statistics (BJS) and the National Center for Education Statistics (NCES), presents the latest available data on school crime and student safety. The report provides a profile of school crime and safety in the United States and describes the characteristics of school crime victims. It is organized as a series of indicators that present data on different aspects of school crime and safety.

The indicators rely on data collected by a variety of federal departments and agencies, including BJS, NCES, the National Center for Health Statistics, and the Centers for Disease Control and Prevention. Because the report relies on so many different data sets, the age groups and the time periods analyzed can vary from indicator to indicator. Readers should keep this in mind as they compare data from different indicators. Furthermore, while every effort has been made to keep key definitions consistent across indicators, different surveys sometimes use different definitions, such as those for specific crimes and "at school." Therefore, caution should be used in making comparisons between results from different data sets.

There are five sections to the report: Nonfatal Student Victimization—Student Reports; Violence and Crime at School—Public School Principal/Disciplinarian Reports; Violent Deaths at School; Nonfatal Teacher Victimization at School—Teacher Reports; and School Environment. Each section contains a set of indicators that, taken as a whole, describe a distinct aspect of school crime and safety. Some of the key findings from each section are summarized below.

Nonfatal Student Victimization—Student Reports

In 1996, students ages 12 through 18 were victims of about 255,000 incidents of nonfatal serious violent crime at school and about 671,000 incidents away from school. These numbers indicate that when students were away from school they were more likely to be victims of nonfatal serious violent crime—including rape, sexual assault, robbery, and aggravated assault—than when they were at school.

- The percentages of 12th-graders who have been injured (with or without a weapon) at school have not changed notably over the past 20 years, although the percentages who have been threatened with injury (with or without a weapon) show a very slight overall upward trend.
- In 1996, 5 percent of all 12th-graders reported that they had been injured with a weapon such as a knife, gun, or club during the past 12 months while they were at school (that is, inside or outside the school building or on a school bus). Twelve percent reported that they had been injured on purpose without a weapon while at school.
- Students were differentially affected by crime according to where they lived. In 1996, 12- through 18-year-old students living in urban areas were more vulnerable to serious violent crime than were students in suburban and rural areas, both at and away from school. However, student vulnerability to theft in 1996 was similar in urban, suburban, and rural areas, both at and away from school.

Violence and Crime at School—Public School Principal or Disciplinarian Reports

In the 1996–97 school year, 10 percent of all public schools reported at least one serious violent crime to the police or a law enforcement representative. Principals' reports of serious violent crimes included murder, rape or other type of sexual battery, suicide, physical attack or fight with a weapon, or robbery. Another 47 percent of public schools reported a less serious violent or nonviolent crime (but not a serious violent one). Crimes in this category include physical attack or fight without a weapon, theft or larceny, and vandalism. The remaining 43 percent of public schools did not report any of these crimes to the police.

- Elementary schools were much less likely than either middle or high schools to report any type of crime in 1996–97. They were much more likely to report vandalism (31 percent of elementary schools) than any of the other crimes (19 percent or less; figure A).
- At the middle and high school levels, physical attack or fight without a weapon was generally the most commonly reported crime in 1996–97 (9 and 8 per 1,000 students, respectively). Theft or larceny was more common at the high school than the middle school level (6 versus 4 per 1,000 students).

Violent Deaths at School

Seventy-six students were murdered or committed suicide at school[1] during the combined 1992–93 and 1993–94 school years (the latest period for which data are available). Nonstudent violent deaths also occurred at school. During this period, there were 105 violent deaths at school, 29 of which involved nonstudents.

- Most murders and suicides among young people occurred while they were away from school. During the combined 1992 and 1993 calendar years, a total of 7,357 young people ages 5 through 19 were murdered in all locations, and 4,366 committed suicide.
- Students in urban schools had a higher risk of violent death at school than their peers in suburban or rural schools. The estimated rate of school-associated violent death for students in urban schools was nine

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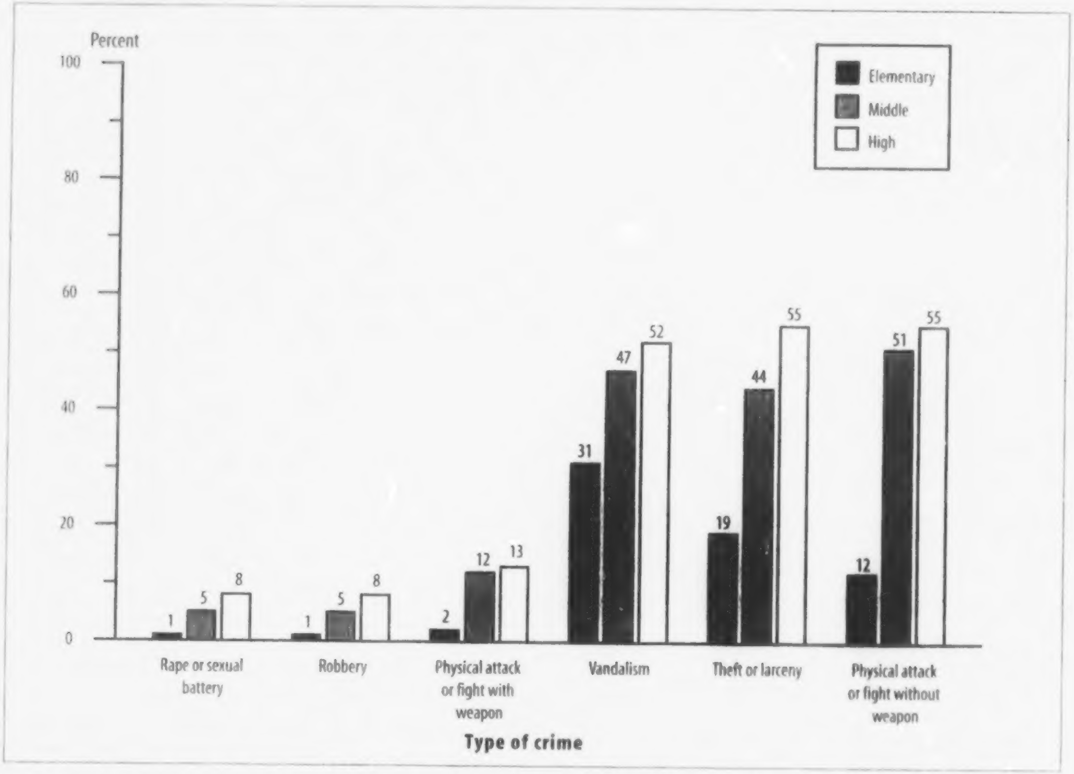
[1] For this indicator, "at school" includes on school property, on the way to or from school, and while attending or traveling to or from an official school-sponsored event.

Figure A.—Percentage of public schools reporting one or more criminal incidents to police, by type of crime and instructional level: 1996–97



NOTE: Examples of weapons are guns, knives, sharp-edged or pointed objects, baseball bats, frying pans, sticks, rocks, and bottles. Schools were asked to report crimes that took place in school buildings, on school buses, on school grounds, and at places holding school-sponsored events.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Principal/School Disciplinarian Survey on School Violence," FRSS 63, 1997. (Originally published as figure 7.1 on p. 16 of the complete report from which this article is excerpted.)

times greater than the rate for students in rural schools and two times greater than that for students in suburban schools during the combined 1992–93 and 1993–94 school years.

Nonfatal Teacher Victimization at School—Teacher Reports

During the 5-year period from 1992 to 1996, teachers were victims of 1,581,000 nonfatal crimes at school, including 962,000 thefts and 619,000 violent crimes (rape or sexual assault, robbery, and aggravated and simple assault). This translates into about 316,000 nonfatal crimes per year during this period.

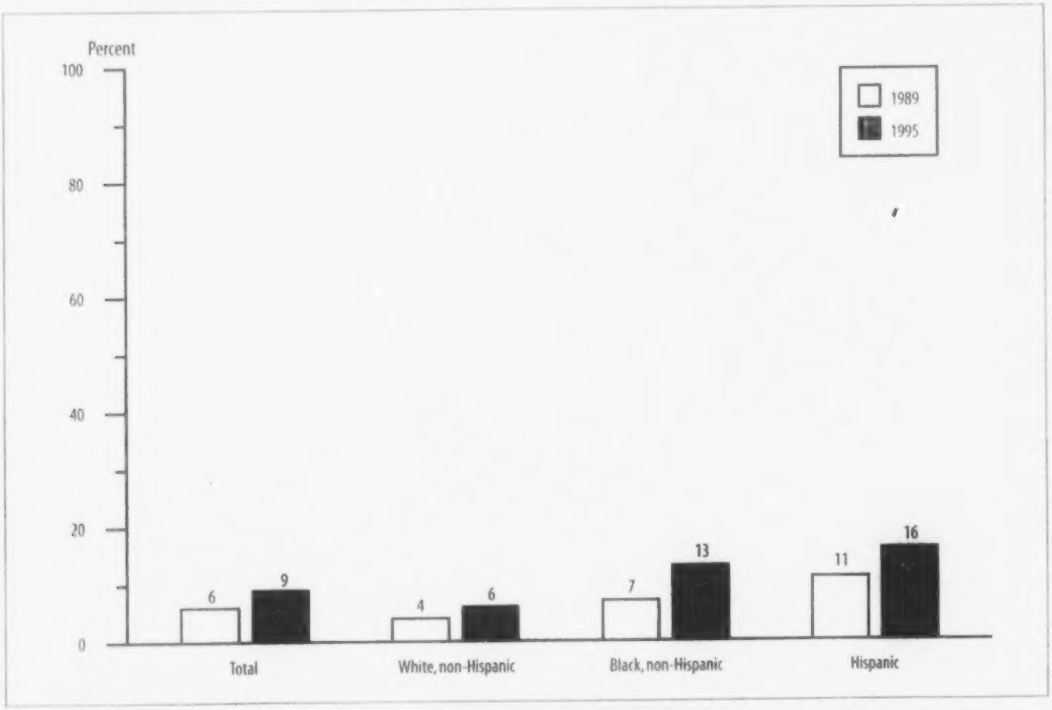
- In the period from 1992 to 1996, middle and junior high school teachers were more likely to be victims of violent crime (most of which were simple assaults) than senior high school teachers, who in turn were more likely to be victims of violent crime than elementary school teachers.
- In the 1993–94 school year, 12 percent of all elementary and secondary school teachers were threatened with injury by a student, and 4 percent were physically attacked by a student. This represents about 341,000 teachers who were victims of threats of injury by students and 120,000 teachers who were victims of attacks by students that year.

School Environment

Between 1989 and 1995, there were increases in the percentages of students feeling unsafe while they were at school and while they were going to and from school. In 1989, 6 percent of students ages 12 through 19 sometimes or most of the time feared they were going to be attacked or harmed at school. By 1995, this percentage had risen to 9 percent (figure B). During the same period, the percentage of students fearing they would be attacked while traveling to and from school rose from 4 percent to 7 percent.

- Between 1989 and 1995, the percentage of students ages 12 through 19 who avoided one or more places at school for fear of their own safety increased, from 5 percent to 9 percent. In 1995, this percentage represented 2.1 million students.

Figure B.— Percentage of students ages 12 through 19 who reported fearing being attacked or harmed at school, by race-ethnicity: 1989 and 1995



NOTE: Includes students who reported that they sometimes or most of the time feared being victimized in this way. "At school" means in the school building, on the school grounds, or on a school bus.

SOURCE: U.S. Department of Justice, Bureau of Justice Statistics, School Crime Supplement to the National Crime Victimization Survey, 1989 and 1995. (Originally published as figure 12.1 on p. 30 of the complete report from which this article is excerpted.)

- Between 1989 and 1995, the percentage of students who reported that street gangs were present at their schools increased. In 1989, 15 percent of students reported gangs being present at their schools. By 1995, this percentage had risen to 28 percent.
- There was a decline between 1993 and 1996 in the percentage of male high school seniors who reported carrying a weapon to school at least 1 day within the 4 weeks before the survey, from 14 percent in 1993 to 9 percent in 1996. However, there was little change in the percentage of female students who reported doing so (from 2 to 3 percent).
- Although 12th-graders were less likely to use alcohol at school than at home or at parties, in 1996 about 8 percent of 12th-graders had consumed alcohol at school in the past 12 months.
- The percentage of 12th-graders who had taken various illegal drugs at school in the previous 12 months declined between 1976 and 1992. However, since 1992, use of marijuana and stimulants at school has increased.

Data sources:

NCES: The School Safety and Discipline component of the 1993 National Household Education Survey (NHES); the Teacher Questionnaire from the 1993–94 Schools and Staffing Survey (SASS); and the Principal/School Disciplinarian Survey on School Violence, conducted through the Fast Response Survey System (FRSS 63, 1997).

Bureau of Justice Statistics (BJS): The 1992–96 (annual) National Crime Victimization Survey (NCVS).

Joint NCES and BJS: The 1989 and 1995 School Crime Supplement (SCS) to the National Crime Victimization Survey.

Other: The 1993, 1995, and 1997 National School-Based Youth Risk Behavior Survey (the Centers for Disease Control and Prevention [CDC]); the 1976–96 (annual) Monitoring the Future Survey (the University of Michigan's Institute for Social Research); the FBI's 1992 and 1993 *Supplementary Homicide Reports;* the CDC's 1992 and 1993 *Vital Statistics of the United States;* and the following article:

Kachur, S.P., et al. (1996). School-Associated Violent Deaths in the United States, 1992 to 1994. *Journal of the American Medical Association 275*(22): 1729–1733.

For technical information, see the complete report:

Kaufman, P., Chen, X., Choy, S.P., Chandler, K.A., Chapman, C.D., Rand, M.R., and Ringel, C. (1998). *Indicators of School Crime and Safety, 1998* (NCES 98–251 or NCJ 172215).

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To obtain the complete report (NCES 98–251 or NCJ 172215), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact the BJS Clearinghouse at 1-800-732-3277.

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Toward Better Teaching: Professional Development in 1993–94

Susan P. Choy and Xianglei Chen

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the 1993–94 Schools and Staffing Survey (SASS).

Teachers' professional development has become a major focus of school reform initiatives as many policymakers, researchers, and other members of the education community have come to believe that further gains in teacher effectiveness and student achievement require significant changes in teachers' knowledge and teaching practices. Teachers' professional development traditionally has been viewed as a local responsibility, but in recent years, the federal government and many state governments have assumed a more active role than in the past. At the federal level, a National Goal has been added, a set of principles for effective professional development has been articulated by the U.S. Department of Education, and funding for professional development activities has been provided through a variety of mechanisms. States' involvement with professional development has traditionally focused on funding, mandating the amount of inservice time, and regulating recertification. Now, many states are taking a more active role in influencing the focus, scope, and quality of professional development as well.

In the context of these changes, this report uses the 1993–94 Schools and Staffing Survey (SASS) to examine who determines the content of professional development programs, the formats in which professional development activities are provided, the rate of participation and amount of time teachers are engaged in activities on certain topics, the ways in which schools or districts support teachers' participation in professional development activities, and teachers' perceptions of the impact of the activities.

Determining the Content of Professional Development Programs

Responsibility for determining the content of inservice professional development was shared in 1993–94. When asked how much influence they thought various groups had in determining the content of inservice programs in their schools, 72 percent of public school principals thought that they had a great deal of influence, 71 percent thought that teachers had a great deal of influence, and 66 percent thought that school district staff had a great deal of influence. Smaller percentages thought that state departments of education and school boards had a great deal of influence (21 percent in each case). Principals in states that mandated specific amounts of time for professional development and required districts to have professional development plans were among those most likely to ascribe a great deal of influence to the state department of education. Teachers were less likely than principals to think that teachers had a great deal of influence: about three-quarters of all teachers thought that they had at least some influence over the content of inservice professional development programs, with 31 percent thinking they had a great deal of influence.

Format of Professional Development

Participation in formal teacher induction programs is increasing in the public sector: 56 percent of public school teachers in their first 3 years of teaching reported having participated in such a program, compared with 44 percent of those with 4 to 9 years of experience and 17 percent of those with 10 to 19 years of experience. Private school teachers in their first 3 years of teaching were less likely to have participated in a formal teacher induction program (28 percent), but assistance to new teachers in private schools, which tend to be smaller than public schools, may be more informal.

In 1993–94, almost all teachers (96 percent of public school teachers and 91 percent of private school teachers) reported having participated in some professional development activity since the end of the last school year. Participation in district- and school-sponsored workshops and other inservice programs was particularly high, reflecting the mandatory nature of much of this type of professional development (table A).

Participation rates varied somewhat with teacher characteristics, but the differences were relatively small. In the public sector, full-time teachers appear to rely more on their schools and part-time teachers more on professional associations for professional development, a pattern that may reflect the opportunities available to them. In both the public and private sectors, teachers with 10 or more years of experience were more likely than new teachers to participate in school- or district- (or affiliation-) sponsored programs and in professional growth activities sponsored by professional associations. New teachers, on the other hand, were more likely than experienced teachers to enroll in college courses in their subject fields, suggesting that they are focusing their professional development time on earning advanced degrees or credentials or, if they are not fully certified, taking courses they need for certification.

Content and Duration of Professional Development Activities

Since the end of the last school year, approximately one-half of all teachers had participated in professional development programs on at least one of three topics associated with recent school reform efforts: uses of educational technology for instruction, student assessment, and cooperative learning in the classroom. In addition, almost two-thirds had participated in professional development programs on methods of teaching in their fields, and 29 percent had undertaken in-depth study in their subjects (table B). Most of these programs lasted one day or less.

Table A.— Percentage of teachers who had participated in various types of professional development activities since the end of the last school year, by sector: 1993–94

	Total	Public	Private
Workshops or inservice programs sponsored by districts (or affiliated organizations for private schools)	85.3	87.5	70.3
School-sponsored workshops or inservice programs	80.3	81.3	73.4
University extension or adult education courses	24.7	25.2	21.2
College courses in their subject field	24.7	25.4	19.9
Growth activities sponsored by professional associations	50.3	51.4	43.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey: 1993–94 (Teacher Questionnaire).

Table B.— Percentage of teachers who had participated in an inservice or professional development program that focused on various topics since the end of the last school year, by sector: 1993–94

	Total	Public	Private
Uses of educational technology for instruction	47.2	49.4	32.5
Methods of teaching in their field	62.8	64.0	54.8
In-depth study in their subject	29.3	30.0	24.2
Student assessment	49.5	51.4	36.4
Cooperative learning in the classroom	49.2	50.9	38.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey: 1993–94 (Teacher Questionnaire).

Rates of participation in professional development programs reflect a variety of factors, including teachers' need for help, availability of resources, the priority that schools and districts give to professional development, the extent to which training is voluntary or mandatory, and teachers' motivation to participate voluntarily. SASS data show some variation by school and teacher characteristics. For example, in both public and private schools, teachers with at least 10 years of experience, who are less likely to have learned computer skills while in college, were more likely than teachers in their first 3 years of teaching to have participated in professional development on the uses of educational technology for instruction. In the public sector, state variation was evident as well, with some of this variation appearing to be related to specific initiatives that some states have implemented. For example, rates of participation by public school teachers in professional development programs on student assessment were particularly high in a few of the states that were developing or implementing new student assessment initiatives.

Support for Professional Development

Effective professional development is dependent to a large extent upon institutional and financial support of teachers' professional development and a school culture that nurtures teacher learning. SASS asked teachers whether they had received various types of support for professional development activities in their main assignment fields. The most common types of support were release time from teaching (received by 47 percent of all teachers) and time for professional development built into their schedules (received by 40 percent). In addition, since the end of the previous school year, 24 percent of all teachers had been reimbursed for travel expenses, 24 percent had their tuition and fees paid, and 31 percent had received professional growth credits for professional development activities related to their main assignment fields. However, 23 percent of all teachers had received none of these types of support. The percentages of teachers receiving various types of support varied by sector and by school and district characteristics. In the public sector, the percentages also varied by state, reflecting varying state involvement in professional development.

Recently developed principles for effective professional development emphasize the importance of a collaborative environment where teachers and administrators develop common goals, share ideas, and work together to achieve their goals. Eleven percent of all teachers strongly agreed that their principal talked with them frequently about instructional practices, 37 percent strongly agreed that there was a great deal of cooperative effort among staff members, and 39 percent strongly agreed that they made a conscious effort to coordinate their courses with other teachers.

Impact of Professional Development Activities

Despite the widespread criticism of the current state of professional development by researchers and policymakers, teachers held generally positive views about the impact of professional development on their teaching practices. Eighty-five percent of teachers who participated in any professional development programs on the use of technology, teaching methods in their fields, student assessment, or cooperative learning, or who undertook in-depth study in their subject fields, reported that those programs provided them with new information. Sixty-two percent reported that the programs caused them to seek further information or training, 65 percent reported that they caused them to change their teaching practices, and 42 percent reported that they caused them to change their views on teaching. Ten percent thought that the programs had wasted their time. The greater the intensity of the participation, the more likely teachers were to think that their professional development experiences had an impact. There was also an association between participation in the various types of professional development and the use of certain instructional practices generally linked to contemporary teaching practices or new pedagogical approaches that are thought to be especially effective.

Conclusion

The 1993–94 data provide important information on professional development as practiced during the mid-1990s. Although the conception and practice of professional development is changing as school reform strategies have increasingly focused on improving professional development, it will take some time for the impact of the policies and programs currently being developed to be evident at the school level. During the past few years, the federal government, state governments, and a wide range of professional associations and other organizations have initiated a host of serious efforts to improve teaching practices. The next administration of SASS, in 1999–2000, will provide an opportunity to determine the extent to which reforms now being planned and implemented have started to influence schools and teachers.

Data sources: The following components of the 1993–94 Schools and Staffing Survey (SASS): Principal Questionnaire, Teacher Questionnaire, School Questionnaire, and Teacher Demand and Shortage Questionnaire. (Available on CD-ROM, NCES 98-312.)

For technical information, see the complete report:

Choy, S.P., and Chen, X. (1998). *Toward Better Teaching: Professional Development in 1993–94* (NCES 98-230).

For a detailed description of the 1993–94 SASS sample design, see

Abramson, R., Cole, C., Fondelier, S., Jackson, B., Parmer, R., and Kaufman, S. (1996). *1993–94 Schools and Staffing Survey: Sample Design and Estimation* (NCES 96-089).

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To obtain the complete report (NCES 98-230), call the toll-free ED Pubs number (877-433-7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202-512-1800).

Status of Education Reform in Public Elementary and Secondary Schools: Teachers' Perspectives

Debbie Alexander, Sheila Heaviside, and Elizabeth Farris

This article is a summary based on the Statistical Analysis Report of the same name. The sample survey data are from the Public School Teacher Survey on Education Reform, conducted through the NCES Fast Response Survey System (FRSS).

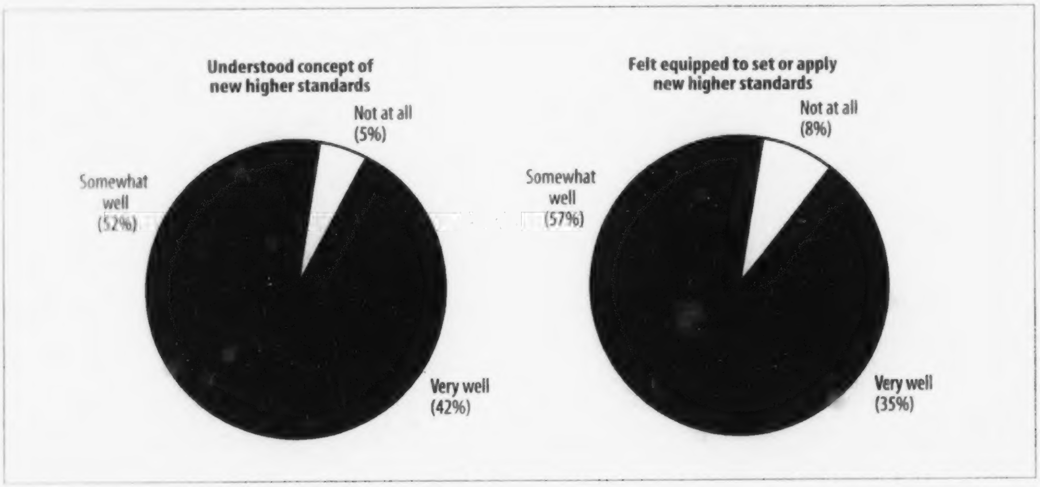
Increasingly, national initiatives are directed toward finding ways to improve the quality of education for all students. Key to many reform initiatives is the application of higher standards for student achievement. The Public School Teacher Survey on Education Reform was conducted to provide nationally representative data on teachers' understanding and implementation of standards-based education reforms. Because of the importance of parental involvement to children's school performance (e.g., U.S. Department of Education 1994), the survey also asked about teachers' efforts to involve parents in student learning. In addition, the survey attempted to identify information and assistance needed by teachers.

The data provided here represent findings from one of two related studies about reform efforts in U.S. public elementary and secondary schools. This study asked teachers about their individual efforts toward education reform, while the other study asked principals about school-wide efforts. Principals' responses are presented in a separate report (Celebuski and Farris 1998).

Understanding and Feeling Equipped to Apply High Standards

Almost all elementary and secondary public school teachers reported having some understanding of the concept of new higher standards for student achievement, and almost all felt at least somewhat equipped to set or apply new higher standards (figure A). However, 42 percent reported understanding the concept very well, and 35 percent reported feeling very well equipped to set or apply new higher standards for their students.

Figure A.—Percentage of public school teachers reporting the extent to which they understood the concept of new higher standards and the percentage reporting the extent to which they felt equipped to set or apply new higher standards: 1996



NOTE: Percentages may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Teacher Survey on Education Reform," FRSS 55, 1996. (Originally published as figure 1 on p. 4 of the complete report from which this article is excerpted.)

Implementing Education Reform Activities

Types of activities that teachers reported implementing in their classes

The survey asked teachers to report the extent to which they were implementing seven specific activities associated with education reform (table A). Two of these activities were frequently cited by teachers as being incorporated into their classes to a great extent: using instructional strategies aligned with high standards (56 percent) and assisting all students to achieve to high standards (52 percent). Elementary school teachers (61 percent) were more likely than middle school teachers (49 percent) and high school teachers (44 percent) to report assisting all students to achieve to high standards to a great extent.

The smallest percentage of teachers (7 percent; table A) reported incorporating innovative technologies such as the Internet and telecommunications-supported instruction to a great extent. Teachers were, however, likely to report a need for more information about this activity. Thus, 79 percent of teachers identified innovative technologies as one of the three areas for which they most needed information.

Subject areas in which teachers reported implementing reform activities

The survey asked teachers to report their use of the seven reform activities in four core subject areas: English–language arts, history–social studies, mathematics, and science. In all four subject areas, teachers reported the use of innovative technologies least often, when compared with the use of other reform activities (less than 30 percent). There were some significant differences by subject areas in teachers' reports of the use of authentic student assessments, such as portfolios, that measure performance against high standards. According to teachers, authentic student assessments were more likely to be used in English–language arts (64 percent) than in mathematics (51 percent), science (42 percent), and history–social studies (38 percent).

Extent to which teachers reported applying high standards to special-needs students

For new standards to be fully applied, they must be incorporated into the curriculum for all students, including those with special needs. Fifty-six percent of teachers reported having students with limited English proficiency

Table A. — Percentage of public school teachers reporting the extent to which various reform activities were being implemented in their classes and areas for which information was most needed: 1996

Reform activity	Extent to which activity was implemented in class[1]: Great extent	Extent to which activity was implemented in class[1]: Moderate extent	Information most needed[2]
Using instructional strategies aligned with high standards	56	35	34
Assisting all students to achieve to high standards	52	39	28
Using curricula aligned with high standards	38	45	31
Using textbooks or other instructional materials aligned with high standards	36	43	30
Providing students or parents with examples of work that meets high standards	30	42	33
Using authentic student assessments, such as portfolios, that measure performance against high standards	20	33	53
Using innovative technologies such as the Internet and telecommunications-supported instruction	7	20	79

[1] Percentages do not add to 100 because this table does not show the third response category—small extent—that was included on the questionnaire.

[2] Teachers could select up to three activities for information.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Teacher Survey on Education Reform," FRSS 55, 1996. (Originally published as table 2 on p. 6 of the complete report from which this article is excerpted.)

enrolled in their classes, and 79 percent reported having students with disabilities. Thirty-three percent of such teachers reported applying, to a great extent, the same high standards of performance used for other students to students with limited English proficiency, as did 28 percent for students with disabilities.

Involving Parents in Student Learning

About one-fourth of all teachers reported that they provided information or advice to parents to a great extent to help them create supportive learning environments at home, and a similar proportion of teachers said they shared responsibility with parents for the academic performance of their children to a great extent (28 percent and 26 percent, respectively).

Elementary school teachers were more likely to report engaging parents in parental involvement activities, to a great extent, than middle and high school teachers. For example, while 46 percent of elementary school teachers reported providing information or advice to parents to a great extent to help create a more supportive learning environment at home, 20 percent of middle school teachers and 10 percent of high school teachers did so. Similarly, 17 percent of elementary school teachers reported involving parents in classroom activities to a great extent, compared with 5 percent of middle school teachers and 3 percent of high school teachers. Finally, 35 percent of elementary school teachers reported sharing responsibility with parents for the academic performance of their children to a great extent, compared with 25 and 15 percent, respectively, of middle and high school teachers.

Attending Professional Development Activities

Because education reform requires continued professional growth among teachers, the survey asked teachers about their professional development activities. Ninety-four percent of teachers reported attending an average of 42 hours of professional development activities such as professional meetings, inservice workshops, and conferences during the period September 1, 1994, through August 31, 1995.

Fifty-six percent of public school teachers participating in professional development reported attending activities in which information on high standards was a major focus. Teachers who reported that they implemented larger numbers of reform activities in their classrooms were more likely to report attending professional development activities with a major focus on higher standards. Among teachers who reported implementing three or more reform activities to a great extent, 65 percent reported attending professional development activities that had a major focus on higher standards. Among teachers who reported that they had not implemented any reform activities to a great extent, 39 percent reported attending such activities.

Getting Information or Assistance With Reform Strategies

At least 90 percent of teachers reported using other teachers, inservice training, school administrators, institutes or workshops, and the school district to help them understand or use comprehensive reform strategies.* Among teachers who used various sources of information, one-third or more reported that other teachers (39 percent), inservice training (37 percent), and institutes or workshops (38 percent) were very effective resources. U.S. Department of Education resources were considered very effective sources of information on comprehensive reform strategies by 4 to 11 percent of teachers consulting these sources.

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Data source: The Public School Teacher Survey on Education Reform, conducted through the NCES Fast Response Survey System (FRSS 55, 1996).

For technical information, see the complete report:

Alexander, D., Heaviside, S., and Farris, E. (1998). *Status of Education Reform in Public Elementary and Secondary Schools: Teachers' Perspectives* (NCES 1999–045).

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To obtain the complete report (NCES 1999–045), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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*Data were collected prior to the Obey-Porter legislation and do not report information about the Comprehensive School Reform Demonstration Program created under that legislation and initiated in fall 1997. "Comprehensive reform" would have been interpreted broadly as referring to a variety of school reform activities.

How Old Are America's Public Schools?

Cassandra Rowand

This article was originally published as an Issue Brief. The sample survey data are from three surveys conducted through the NCES Fast Response Survey System (FRSS). The surveys are listed at the end of the article.

The condition of America's public school facilities is an issue of great concern to educators and administrators (Honeyman 1994; Kowalski 1995). In 1989, the Education Writers Association reported that nearly half of the public school buildings in America were obsolete and contained environmental hazards (Lewis 1989). The state of America's school facilities continues to be a problem today. In his 1997 State of the Union Address, President Clinton remarked, "We cannot expect our children to raise themselves up in schools that are literally falling down. With the student population at an all-time high, and record numbers of school buildings falling into disrepair, this has now become a serious national concern" (Clinton 1997).

How old are America's public schools? How recently have public schools been renovated? Data from the National Center for Education Statistics (NCES) Fast Response Survey System (FRSS) can help answer these questions. In 1994, 1995, and 1996, FRSS surveys queried U.S. public school administrators about the age of their school buildings. The combined data from these 3 years can be used to help determine the average age of public schools, where the older and newer public schools are located, and whether school age is related to other school characteristics. Data from 1995, which include the date of each school building's last major renovation, make it possible to explore school condition and Internet accessibility.

The increase in the construction of schools between 1950 and 1969 corresponds to the years during which the Baby Boom generation was going to school.

In 1998, the average public school building in the United States was 42 years old. The mean age ranged from 46 years in the Northeast and Central states to 37 years in the Southeast (table 1). On average, schools located in the Northeast and Central regions of the country were older than those located in the Southeast and the West. Many of

Table 1.— Percentage of public schools constructed in various years and mean age of schools as of 1998, by school characteristics

School characteristics	Year built (percentage of schools) Before 1950	1950–1969	1970–1984	1985 or after	Mean age
All public schools	28	45	17	10	42
Instructional level					
Elementary	29	46	15	11	43
Secondary	24	46	23	8	40
Size of enrollment					
Less than 300	40	39	14	8	48
300–999	24	48	17	11	40
1,000 or more	23	44	22	11	39
Locale					
City	34	44	13	9	46
Urban fringe	20	53	17	10	40
Town	24	47	20	9	40
Rural	32	38	17	12	42
Region					
Northeast	30	49	15	6	46
Southeast	23	43	20	14	37
Central	33	46	14	8	46
West	25	44	19	13	39
Percentage of students eligible for free or reduced-price school lunch					
Less than 20 percent	20	48	20	11	39
20–49 percent	29	44	16	11	41
50 percent or more	34	42	14	10	44

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996.

America's schools may be at an age where frequent repairs are necessary. According to Ornstein (1994), when a school is 20 to 30 years old, frequent replacement of equipment is needed. Between 30 and 40 years old, the original equipment should have been replaced, including the roof and electrical equipment. After 40 years, a school building begins to deteriorate rapidly, and after 60 years most schools are abandoned.

About one-fourth (28 percent) of all public schools were built before 1950, and 45 percent of all public schools were built between 1950 and 1969 (table 1). Seventeen percent of public schools were built between 1970 and 1984, and 10 percent were built after 1984. The increase in the construction of schools between 1950 and 1969 corresponds to the years during which the Baby Boom generation was going to school.

America's oldest schools have a higher proportion of children in poverty (table 1). Among schools with less than 20 percent of children eligible for free or reduced-price school lunch, 20 percent were built before 1950. Schools with larger percentages of children eligible for free and reduced-price lunch were more likely to have been built before 1950 (29 percent of schools with 20 to 49 percent of children eligible, and 34 percent of schools with 50 percent or more of children eligible). The age of a school and its size are also related. While 40 percent of small schools (enrollments of less than 300) were built before 1950, 23 percent of large schools (enrollments of 1,000 or more) were built before 1950.

Seventy-three percent of public schools report having undergone at least one major renovation.

In 1995, FRSS also collected data on the year that schools underwent their last major renovation. About three-fourths (73 percent) of schools reported having undergone at least one major renovation: 17 percent reported last undergoing a major renovation prior to 1980, 17 percent reported the last major renovation between 1980 and 1989, and 39 percent reported the last major renovation between 1990 and 1995 (table 2). Unlike the age of school buildings, the year since the last major renovation is not significantly related to the enrollment size, locale, or region (data not shown). Of the school buildings that had never undergone a major renovation, 50 percent were at least 25 years old in 1995.

A measure combining age of school and year of renovation represents a rough approximation of the "condition" of schools in 1995, assuming that all other building conditions were equal. Thus, schools built before 1970 and either never renovated or renovated prior to 1980 would be in the "oldest condition"—29 percent of all public schools fell into this category. Those schools built before 1970 and renovated in 1980 or later, or built between 1970 and 1984, may be considered to be in "moderate condition"—61 percent of all schools were in this category. The remaining schools, those built after 1984, are in the "newest condition"—10 percent of America's public schools fell into this category in 1995 (table 2).

Table 2.— Percentage of schools in oldest, moderate, and newest condition, by the year built and last major building renovation: 1995

Year of last major renovation	Total	Year built Before 1950	 1950–1969	 1970–1984	 1985 or after
Total	100	26	46	19	10
Never	27	☐ 2	☐ 12	8	■ 6
Before 1980	17	☐ 9	☐ 7	1	■ —
1980–1989	17	5	8	3	■ 1
1990–1995	39	10	19	7	■ 2

☐ Schools in the "oldest" condition.

■ Schools in the "newest" condition.

— Not applicable.

NOTE: Percentages may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995.

The percentage of schools in the "oldest" condition (i.e., the 29 percent that were more than 25 years old and had not been renovated during the past 15 years) is of concern to educators and policymakers. While newer schools are more likely to be built with convenient connections to the Internet, there is reason for concern that schools in the "oldest" condition may be lagging behind in the nationwide push to connect all schools to the Internet by the year 2000. In fact, of schools in the "oldest" condition, 42 percent were connected to the Internet in 1995, whereas of schools in the "newest" condition, 59 percent were connected to the Internet (data not shown).

The condition of school buildings is related to both locale and region. Schools located in urban fringes were more likely to be in the "oldest" condition than schools located in towns (36 percent compared with 22 percent; table 3). Schools in the Central region of the country were more likely to be in the "oldest" condition than those in the Southeast region (36 percent and 21 percent, respectively). In contrast, schools in the West region were more likely to be in the "newest" condition than schools located in the Northeast and Central regions (15 percent compared with 5 and 6 percent, respectively). No differences were found among schools in the likelihood of being in the "oldest" and "newest" condition in terms of the percentage of students eligible for free or reduced-price lunch.

Table 3.—Percentage of schools in oldest, moderate, and newest condition, by school characteristics: 1995

	Condition of school		
School characteristics	**Oldest**	**Moderate**	**Newest**
All public schools	29	61	10
Instructional level			
Elementary	30	60	10
Secondary	28	65	7
Size of enrollment			
Less than 300	36	58	6
300–999	27	62	11
1,000 or more	25	64	12
Locale			
City	32	57	11
Urban fringe	36	54	10
Town	22	71	7
Rural	28	61	11
Region			
Northeast	33	62	5
Southeast	21	68	11
Central	36	57	6
West	25	59	15
Percentage of students eligible for free or reduced-price school lunch			
Less than 20 percent	28	61	11
20–49 percent	31	59	10
50 percent or more	29	63	7

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995.

Summary

A number of important findings regarding the age of school buildings were gleaned from the FRSS surveys:

- In 1998, the average age of public school buildings in the United States was 42 years.
- Almost half (45 percent) of U.S. public schools were built between 1950 and 1969.
- About three-fourths (73 percent) of school buildings reported having had at least one major renovation by 1995.
- In 1995, 59 percent of schools built after 1984 were connected to the Internet, compared with 42 percent of schools built before 1970 and renovated either before 1980 or not at all.

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For technical information, see the following reports:

Carpenter, J. *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, 1995* (NCES 96–854);

Heaviside, S., Farris, E., and Malitz, G. *Advanced Telecommunications in U.S. Public Schools, K–12* (NCES 95–731); and

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Internet Access in Public and Private Schools

This article was originally published as an Indicator of the Month, taken from The Condition of Education 1998. *The sample survey data are from several surveys—listed at the end of this article—on advanced telecommunications in U.S. schools. The surveys were conducted through the NCES Fast Response Survey System (FRSS).*

The Internet, with its vast array of information, can broaden the learning resources available through schools by providing teachers and students with connections to remote libraries, schools, and government agencies. Information found on the Internet can broaden students' knowledge base, and having Internet access can prepare students for an increasingly technological workplace. Examining patterns of Internet access in schools may help determine how many students will be prepared to use this technology effectively in the future.

- Between fall 1994 and 1997, Internet access in public schools increased from 35 to 78 percent. However, in fall 1997, 27 percent of instructional rooms had Internet access.
- In fall 1995, public schools were more likely to have Internet access than private schools (50 versus 25 percent). Additionally, public schools had a higher percentage of instructional rooms with Internet access than private schools (8 versus 5 percent).
- Public schools with a high percentage of low-income students (71 percent or more of students eligible for free or reduced-price lunch) were less likely than schools with a low percentage of low-income students (less than 11 percent of students eligible for free or reduced-price lunch) to have Internet access in fall 1997.
- In fall 1997, public schools with a high minority enrollment (50 percent or more) had a lower rate of Internet access than public schools with a low minority enrollment (less than 6 percent). Moreover, public schools with a high minority enrollment had a smaller percentage of instructional rooms with Internet access than public schools with a low minority enrollment.
- In both public and private schools with Internet access, teachers were more likely than students in these schools to have access to e-mail, news groups, resource location services, and the World Wide Web.

Percentage of public schools and instructional rooms with Internet access, by selected school characteristics: Fall 1994–97

	Percentage of schools with Internet access				Percentage of instructional rooms with Internet access[1]			
School characteristics	1994	1995	1996	1997	1994	1995	1996	1997
Total	35	50	65	78	3	8	14	27
Level of school[2]								
Elementary	30	46	61	75	3	8	13	24
Secondary	49	65	77	89	4	8	16	32
Percentage of students eligible for free or reduced-price lunch								
Less than 11	—	62	78	88	—	9	18	36
11–30	—	59	72	83	—	10	16	32
31–70	—	47	58	78	—	7	14	27
71 or more	—	31	53	63	—	3	7	14
Percentage of minority students enrolled								
Less than 6	—	52	65	84	—	9	18	37
6–20	—	58	72	87	—	10	18	35
21–49	—	54	65	73	—	9	12	22
50 or more	—	40	56	63	—	3	5	13

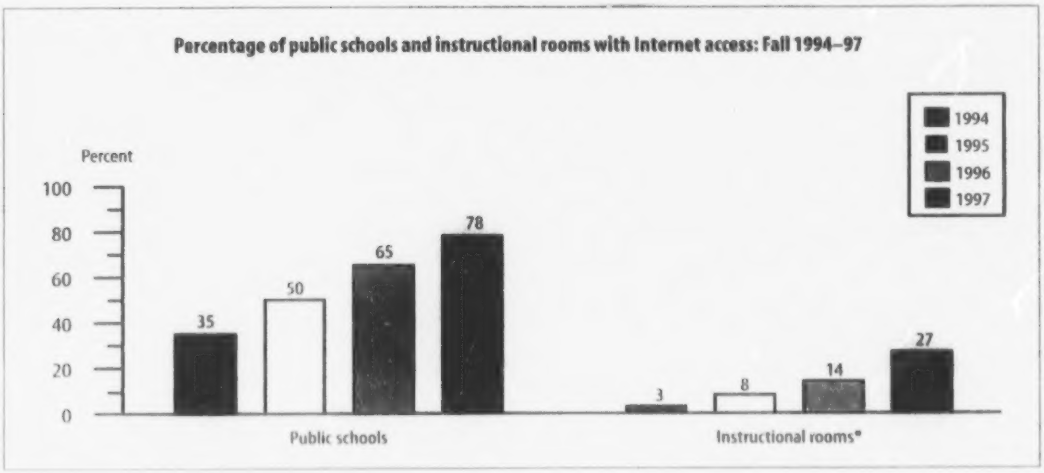
— Not available.

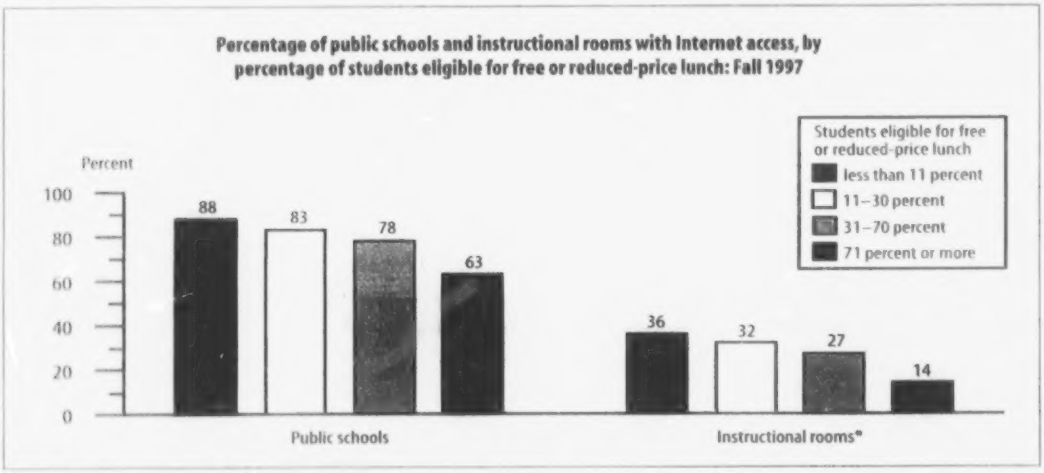
[1] Based on the total number of instructional rooms in regular public schools.

[2] Data for combined schools are not reported as a separate level of school because there are too few sample observations for reliable estimates. Data for combined schools are included in the totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996; and "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997," FRSS 64, 1997. As published (in part) in *Internet Access in Public Schools* (NCES 98-031), table 1, p. 1; and *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (NCES 97-944), table 1, p. 3.

Internet access in public schools


Percentage of public schools and instructional rooms with Internet access: Fall 1994–97


Percentage of public schools and instructional rooms with Internet access, by percentage of students eligible for free or reduced-price lunch: Fall 1997

*Based on the total number of instructional rooms in regular public schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996; and "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997," FRSS 64, 1997. As published (in part) in *Internet Access in Public Schools* (NCES 98–031), table 1, p. 1; and *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (NCES 97–944), table 1, p. 3.

Data sources: The following surveys, all conducted through the NCES Fast Response Survey System (FRSS): Survey on Advanced Telecommunications in U.S. Public Schools, K–12 (FRSS 51, 1994); Survey on Advanced Telecommunications in U.S. Private Schools, K–12 (FRSS 56, 1995); Survey on Advanced Telecommunications in U.S. Public Schools, K–12 (FRSS 57, 1995); Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996 (FRSS 61, 1996); and Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997 (FRSS 64, 1997).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education 1998* (NCES 98–013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education 1998* (*http://nces.ed.gov/pubs98/condition98/index.html*), or
- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999–025).

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To obtain this Indicator of the Month (NCES 1999–005), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Overview of Public Elementary and Secondary Schools and Districts: School Year 1996–97

Lee Hoffman

This article, originally published as a Statistics in Brief report, is an analysis of universe data from the NCES Common Core of Data (CCD). Technical notes and definitions from the original report have been omitted.

Types of Public Schools

In the 1996–97 school year, 86,058 public schools provided instruction to 45.6 million students in the United States (table 1).[1] This was an increase of 1.7 percent over the previous year for students and 1.1 percent in the number of schools.[2] Most of these institutions were regular schools (81,163). Regular schools often provide a range of special, vocational, and alternative programs in addition to their traditional curriculum offerings; however, in 1996–97 there were 4,895 schools that offered these specialized programs as their primary function. Among this group were 1,686 schools whose major function was to provide special education for students with disabilities and 335 schools identified as vocational. Some 2,874 schools were reported to offer other alternative programs.

The great majority of public school students, 98.2 percent, were enrolled in regular schools. An additional 0.5 percent were in special education schools, 0.4 percent in vocational schools, and 0.9 percent in alternative schools. These distributions were unchanged from the previous year. Georgia, Mississippi, and North Dakota reported no special schools. With 7.7 percent of its pupils enrolled in nonregular schools, Delaware had the greatest proportion of students in these specialized settings.

Schools and Community Size

Table 2 shows that while one in eight schools was located in a large city, one in six students attended large city schools. There were about the same number of schools in rural areas and the urban fringes of large cities: about one in four. However, urban fringes of large cities accounted for twice as many students as did rural schools.

Primary, Middle, and High Schools

Among the 86,058 public schools with students in membership during the 1996–97 school year, 59.1 percent spanned the traditional primary grades, typically beginning with prekindergarten or kindergarten and going no higher than grade 8 (table 3). About half (50.5 percent) of the nation's public school students were enrolled in these schools. An additional 17.2 percent of the schools covered the upper elementary and middle grades and offered instruction to 19.5 percent of public school students.

High schools represented 18.8 percent of the schools reported and enrolled 26.9 percent of the total number of students. About 4.9 percent of schools followed some other grade configuration, including schools that spanned all of grades kindergarten through 12 and those that were ungraded.

School District Grade Spans

In 1996–97, there were 14,990 public education agencies providing education services directly to students in the United States. Some of these were operated directly by states or federal agencies, or had a primary role other than that of administering regular education services. However, the majority of public education agencies (14,422) were regular school districts providing education to children within their jurisdiction (table 4).

States vary in the organization of their regular education agencies. Hawaii and the District of Columbia each consist of a single school district. Sixteen other states reported 100 percent of their students in comprehensive K–12 districts. On the other hand, Arizona, Illinois, Montana, and Vermont reported less than two-thirds of their students in comprehensive school districts.

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[1] Although the outlying areas and the Department of Defense Dependents Schools (overseas) are included in the tables, national totals are limited to the 50 states and the District of Columbia.

[2] Comparisons are based on the previous edition of this Statistics in Brief, which covered the 1995–96 school year: *Overview of Public Elementary and Secondary Schools and Districts: School Year 1995–96* (NCES 98-206).

Table 1. — Number of public elementary and secondary schools with membership and percentage of students in membership, by type of school and by state: School year 1996–97

State	Schools having membership	Total students	Type of school							
			Regular		Special education		Vocational education		Alternative education	
			Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students
United States	86,058	45,592,213	81,163	98.2	1,686	0.5	335	0.4	2,874	0.9
Alabama	1,340	748,156	1,306	99.7	17	0.1	3	0.0	14	0.1
Alaska	482	129,919	451	96.2	2	0.3	3	0.4	26	3.1
Arizona	1,297	799,250	1,227	98.2	13	0.1	3	0.4	54	1.3
Arkansas	1,104	457,349	1,103	99.6	0	0.0	1	0.4	0	0.0
California	7,981	5,687,901	7,095	96.6	127	0.6	0	0.0	759	2.8
Colorado	1,468	673,438	1,400	98.9	8	0.0	3	0.1	57	1.0
Connecticut	1,023	527,129	952	96.8	23	0.6	17	1.8	31	0.8
Delaware	183	110,549	147	92.2	28	2.6	5	4.9	3	0.2
District of Columbia	184	78,648	166	96.8	10	2.1	0	0.0	8	1.0
Florida	2,790	2,242,212	2,379	97.6	101	1.0	45	0.2	265	1.3
Georgia	1,798	1,346,761	1,798	100.0	0	0.0	0	0.0	0	0.0
Hawaii	249	187,653	244	99.9	4	0.0	0	0.0	1	0.1
Idaho	624	245,252	560	98.6	16	0.2	0	0.0	48	1.2
Illinois	4,171	1,973,040	3,836	97.4	240	1.2	26	0.6	69	0.8
Indiana	1,868	983,415	1,818	99.5	24	0.2	1	0.0	25	0.3
Iowa	1,547	502,941	1,501	99.0	14	0.2	0	0.0	32	0.8
Kansas	1,463	466,293	1,448	99.7	1	0.0	0	0.0	14	0.3
Kentucky	1,341	656,089	1,281	99.6	8	0.1	1	0.1	51	0.2
Louisiana	1,475	793,296	1,374	97.0	37	0.4	11	0.3	53	2.3
Maine	691	213,593	690	100.0	1	0.0	0	0.0	0	0.0
Maryland	1,284	818,583	1,201	97.4	48	1.0	10	1.1	25	0.6
Massachusetts	1,840	933,898	1,767	96.1	1	0.0	43	3.4	29	0.5
Michigan	3,470	1,684,386	3,286	98.3	97	0.8	12	0.2	75	0.6
Minnesota	1,786	847,204	1,406	96.4	62	0.3	2	0.0	316	3.3
Mississippi	876	503,967	876	100.0	0	0.0	0	0.0	0	0.0
Missouri	2,120	900,042	2,076	98.9	18	0.6	7	0.4	19	0.1
Montana	892	164,627	887	99.9	2	0.0	0	0.0	3	0.1
Nebraska	1,379	291,967	1,318	99.6	61	0.4	0	0.0	0	0.0
Nevada	436	282,131	402	98.1	11	0.4	2	0.7	21	0.9
New Hampshire	512	198,308	511	99.8	1	0.2	0	0.0	0	0.0
New Jersey	2,278	1,208,179	2,156	97.6	78	0.8	44	1.6	0	0.0
New Mexico	731	332,632	688	98.4	17	0.6	0	0.0	26	0.9
New York	4,166	2,843,131	3,986	97.0	88	0.7	25	1.3	67	1.0
North Carolina	1,997	1,210,108	1,922	99.4	24	0.3	4	0.0	47	0.4
North Dakota	569	120,123	569	100.0	0	0.0	0	0.0	0	0.0
Ohio	3,725	1,844,389	3,672	99.5	23	0.2	13	0.2	17	0.1
Oklahoma	1,819	620,695	1,807	99.7	12	0.3	0	0.0	0	0.0
Oregon	1,222	537,854	1,167	98.9	14	0.1	0	0.0	41	1.0
Pennsylvania	3,110	1,804,256	3,074	98.4	11	1.0	14	0.6	11	0.1
Rhode Island	316	151,324	306	98.6	4	0.5	3	0.5	3	0.4
South Carolina	1,047	653,011	1,022	99.5	10	0.1	0	0.0	15	0.4
South Dakota	820	143,331	802	99.1	11	0.4	0	0.0	7	0.4
Tennessee	1,512	905,089	1,487	99.6	14	0.3	4	0.1	7	0.0
Texas	6,875	3,828,975	6,247	98.5	221	0.5	24	0.1	383	0.9
Utah	742	481,812	675	97.9	23	0.5	2	0.1	42	1.5
Vermont	363	106,341	320	98.4	42	1.5	0	0.0	1	0.0
Virginia	1,792	1,096,093	1,725	99.4	29	0.2	0	0.0	38	0.4
Washington	1,971	974,504	1,782	98.1	67	0.3	3	0.1	119	1.6
West Virginia	829	304,052	809	99.6	7	0.2	3	0.0	10	0.2
Wisconsin	2,092	879,259	2,045	99.6	13	0.1	0	0.0	34	0.4
Wyoming	408	99,058	396	98.9	3	0.2	1	0.3	8	0.6
Outlying areas										
DOD Dependents	165	80,715	165	100.0	0	0.0	0	0.0	0	0.0
American Samoa	31	14,766	29	97.6	1	0.5	1	1.9	0	0.0
Guam	35	33,393	35	100.0	0	0.0	0	0.0	0	0.0
Northern Marianas	26	9,041	26	100.0	0	0.0	0	0.0	0	0.0
Puerto Rico	1,533	618,861	1,495	98.3	21	0.2	16	1.5	1	0.0
Virgin Islands	34	22,385	33	99.8	0	0.0	0	0.0	1	0.2

NOTE: Table excludes 2,165 schools for which no students were reported in membership. U.S. totals exclude outlying areas. New Jersey data are estimated. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0. Number of students in membership reported on the State Nonfiscal Survey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, School Universe and State Nonfiscal Survey, 1996–97.

Table 2.—Number and percentage of schools with membership and percentage of students in membership by community type: School year 1996–97

Community type	Number of schools	Percentage of schools	Percentage of students
United States	86,058	100.0	100.0
Large city	10,945	12.7	17.3
Midsize city	12,451	14.5	16.2
Urban fringe, large city	21,032	24.4	29.8
Urban fringe, midsize city	7,688	8.9	9.7
Large town	1,469	1.7	1.7
Small town	10,998	12.8	11.0
Rural	21,475	25.0	14.4

NOTE: Community types classify the location of a school relative to populous areas. Table includes the 50 states and the District of Columbia. New Jersey data are estimated. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, School Universe, 1996–97.

Among the 14,422 regular school districts with pupils in membership, 3,161 were responsible for only the elementary grades, beginning with grades prekindergarten, kindergarten, or 1 and ending at grade 8 or below (table 4). These districts enrolled 5.9 percent of the nation's public school students. An additional 548 agencies could be characterized as secondary school districts, with a low grade of 7 or higher and a high grade of 12. Some 2.3 percent of all students attended schools in these districts. An additional 171 districts had some other configuration. However, almost three out of four districts (10,542) provided instruction from the beginning of school through graduation. Fully 91.6 percent of all students were enrolled in these comprehensive school districts.

School District Size

School districts varied greatly in size, as measured by the number of students in membership. A very few districts (24) enrolled 100,000 or more students, while a larger number (1,725) reported fewer than 150 students (table 5). While small in number, the largest districts served a considerable portion of America's public school students. Although only 1.6 percent of districts served 25,000 or more students, fully 31.1 percent of students received their education in these largest districts. To show the contrast from a different perspective, almost half of the school districts in the United States had fewer than 1,000 students in 1996–97. At the same time, almost half of the public school students in this country attended schools in districts of 10,000 students or more.

Table 3.—Percentage of public elementary and secondary schools providing instruction and percentage of students in membership, by specified level of instruction and by state: School year 1996–97

State	Number of schools having membership	Primary		Middle		High		Other	
		Schools	Students	Schools	Students	Schools	Students	Schools	Students
United States	86,058	59.1	50.5	17.2	19.5	18.8	26.9	4.9	3.1
Alabama	1,340	50.9	43.7	16.8	17.0	19.2	24.9	13.1	14.4
Alaska	482	36.3	47.0	6.8	13.2	13.5	24.1	43.4	15.7
Arizona	1,297	61.8	55.7	16.3	17.6	15.7	24.9	6.2	1.8
Arkansas	1,104	52.3	48.0	16.2	19.5	29.0	27.5	2.5	4.9
California	7,981	63.7	53.7	14.6	17.7	17.5	26.3	4.2	2.2
Colorado	1,468	59.2	50.4	17.8	21.1	19.8	26.2	3.3	2.2
Connecticut	1,023	61.9	52.0	17.6	20.7	16.7	26.1	3.8	1.2
Delaware	183	48.1	40.2	23.0	28.4	18.0	29.2	10.9	2.2
District of Columbia	184	63.0	61.9	14.7	15.0	12.0	18.3	10.3	4.9
Florida	2,790	56.7	50.3	15.5	20.3	13.4	21.3	14.4	8.0
Georgia	1,798	62.0	51.0	18.5	20.2	15.6	24.8	3.9	3.9
Hawaii	249	69.1	55.2	11.6	13.3	13.3	26.7	6.0	4.8
Idaho	624	53.2	47.5	16.7	21.9	25.0	28.1	5.1	2.5
Illinois	4,171	61.9	55.4	16.9	15.0	17.5	27.3	3.7	2.2
Indiana	1,868	62.9	49.7	16.5	18.1	18.5	30.6	2.1	1.6
Iowa	1,547	54.8	46.6	18.7	19.5	24.2	31.0	2.2	2.8
Kansas	1,463	58.0	50.4	16.9	19.6	24.5	29.5	0.6	0.5
Kentucky	1,341	58.9	48.8	16.9	20.1	21.3	30.6	3.0	0.5
Louisiana	1,475	53.6	47.8	19.3	19.7	17.2	26.0	10.0	6.5
Maine	691	64.3	49.5	17.9	21.6	15.8	27.2	2.0	1.7
Maryland	1,284	66.0	52.3	17.4	20.5	14.1	25.7	2.5	1.5
Massachusetts	1,840	65.8	52.4	16.4	19.0	15.7	25.6	2.2	3.0
Michigan	3,470	59.3	49.8	17.2	20.0	18.1	27.3	5.4	2.8
Minnesota	1,786	53.4	48.6	12.4	18.0	28.5	31.6	5.7	1.8
Mississippi	876	50.3	44.0	18.8	18.9	20.2	25.1	10.6	12.0
Missouri	2,120	56.9	49.3	16.3	19.6	23.4	29.1	3.3	2.0
Montana	892	53.6	49.0	26.5	20.4	19.6	30.0	0.3	0.6
Nebraska	1,379	67.5	51.3	7.9	15.1	22.9	33.0	1.7	0.6
Nevada	436	64.9	52.1	13.8	20.8	18.1	25.9	3.2	1.3
New Hampshire	512	67.0	50.5	18.0	22.7	15.0	26.8	0.0	0.0
New Jersey	2,278	63.6	53.1	17.1	17.7	13.4	26.0	5.8	3.2
New Mexico	731	59.1	48.9	20.5	22.7	18.1	27.4	2.3	1.0
New York	4,166	58.8	50.1	16.6	18.6	18.0	27.1	6.6	4.2
North Carolina	1,997	60.0	51.5	20.3	21.3	16.6	25.8	3.1	1.4
North Dakota	569	58.3	50.9	6.5	12.1	33.9	34.4	1.2	2.6
Ohio	3,725	59.3	48.5	19.2	20.3	18.6	29.4	2.9	1.9
Oklahoma	1,819	54.5	51.5	18.9	21.3	25.5	24.7	1.2	2.6
Oregon	1,222	61.4	48.5	16.9	21.2	17.3	28.6	4.5	1.7
Pennsylvania	3,110	62.3	48.4	16.9	19.5	19.3	29.9	1.4	2.2
Rhode Island	316	67.7	50.1	17.1	22.2	13.3	27.5	1.9	0.3
South Carolina	1,047	56.3	46.4	23.2	24.4	18.1	28.1	2.4	1.1
South Dakota	820	51.6	47.7	23.8	21.2	23.3	30.9	1.3	0.2
Tennessee	1,512	62.0	52.3	16.2	17.0	17.9	27.2	3.9	3.4
Texas	6,875	51.4	48.8	20.9	23.0	19.4	25.4	8.3	2.8
Utah	742	59.3	49.9	16.2	22.0	19.1	25.8	5.4	2.3
Vermont	363	70.0	53.8	6.1	8.7	13.5	30.0	10.5	7.5
Virginia	1,792	61.9	48.9	18.2	21.6	16.5	28.2	3.5	1.3
Washington	1,971	57.1	49.7	16.5	20.3	19.7	27.0	6.7	3.0
West Virginia	829	64.5	48.4	16.6	20.2	15.1	28.1	3.7	3.3
Wisconsin	2,092	58.7	48.6	17.6	19.3	21.6	30.8	2.0	1.2
Wyoming	408	57.6	47.0	22.5	24.2	18.6	28.0	1.2	0.8
Outlying areas									
DOD Dependents	165	57.6	59.7	10.3	10.9	23.0	21.1	9.1	8.2
American Samoa	31	74.2	72.5	3.2	4.4	19.4	22.7	3.2	0.5
Guam	35	68.6	53.9	17.1	21.6	14.3	24.5	0.0	0.0
Northern Marianas	26	84.6	64.7	3.8	11.5	11.5	23.8	0.0	0.0
Puerto Rico	1,533	60.1	46.1	14.4	17.0	11.0	20.3	14.5	16.6
Virgin Islands	34	67.6	52.9	17.6	17.0	11.8	28.5	2.9	1.6

NOTE: Instructional levels are primary (low grade prekindergarten to 3, high grade up to 8); middle (low grade 4 to 7, high grade 4 to 9); high (low grade 7 to 12, high grade 12 only); other (any configuration not falling within the previous three, including ungraded schools). Table excludes 2,188 schools for which no students were reported in membership. U.S. totals exclude outlying areas. New Jersey data are estimated. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, School Universe, 1996–97.

Table 4.— Number of regular public elementary and secondary school districts providing instruction and percentage of students in membership, by grade span and by state: School year 1996–97

State	Total districts	Grade span: Pre-K, K, 1 to 8 or below: Number of districts	Pre-K, K, 1 to 8 or below: Percentage of students	Pre-K, K, 1 to 9–12: Number of districts	Pre-K, K, 1 to 9–12: Percentage of students	7, 8, 9 to 7–12: Number of districts	7, 8, 9 to 7–12: Percentage of students	Other: Number of districts	Other: Percentage of students
United States	14,422	3,161	5.9	10,542	91.6	548	2.3	171	0.2
Alabama	127	0	0.0	127	100.0	0	0.0	0	0.0
Alaska	53	0	0.0	53	100.0	0	0.0	0	0.0
Arizona	290	139	28.8	101	61.7	30	9.1	20	0.4
Arkansas	311	0	0.0	311	100.0	0	0.0	0	0.0
California	999	590	21.6	303	68.9	103	9.3	3	0.2
Colorado	176	1	0.0	175	100.0	0	0.0	0	0.0
Connecticut	166	45	4.8	113	93.8	8	1.5	0	0.0
Delaware	19	0	0.0	15	94.3	4	5.7	0	0.0
District of Columbia	1	0	0.0	1	100.0	0	0.0	0	0.0
Florida	67	0	0.0	67	100.0	0	0.0	0	0.0
Georgia	180	7	0.2	173	99.8	0	0.0	0	0.0
Hawaii	1	0	0.0	1	100.0	0	0.0	0	0.0
Idaho	112	5	0.1	106	99.9	0	0.0	1	0.0
Illinois	921	394	25.8	406	63.5	114	10.7	7	0.1
Indiana	292	1	0.0	291	100.0	0	0.0	0	0.0
Iowa	378	25	1.0	353	99.0	0	0.0	0	0.0
Kansas	304	2	0.0	302	100.0	0	0.0	0	0.0
Kentucky	176	6	1.0	169	98.8	1	0.2	0	0.0
Louisiana	66	0	0.0	66	100.0	0	0.0	0	0.0
Maine	227	108	12.2	112	86.7	5	1.1	2	0.0
Maryland	24	0	0.0	24	100.0	0	0.0	0	0.0
Massachusetts	247	67	5.0	176	94.5	2	0.2	2	0.3
Michigan	628	63	0.4	527	99.1	8	0.1	30	0.4
Minnesota	352	27	0.6	312	97.5	9	0.2	4	1.7
Mississippi	153	0	0.0	149	99.7	3	0.2	1	0.1
Missouri	523	73	1.3	450	98.7	0	0.0	0	0.0
Montana	463	287	62.2	47	10.9	119	26.8	10	0.1
Nebraska	645	320	4.0	267	94.3	23	1.7	35	0.1
Nevada	17	1	0.0	16	100.0	0	0.0	0	0.0
New Hampshire	162	88	19.2	66	77.8	7	2.4	1	0.6
New Jersey	582	294	19.3	207	72.2	51	6.6	30	1.9
New Mexico	89	1	2.0	88	98.0	0	0.0	0	0.0
New York	706	43	1.0	645	98.3	8	0.6	10	0.1
North Carolina	118	0	0.0	118	100.0	0	0.0	0	0.0
North Dakota	234	45	2.4	177	96.8	6	0.5	6	0.3
Ohio	611	0	0.0	610	100.0	0	0.0	1	0.0
Oklahoma	549	117	3.4	431	96.5	0	0.0	1	0.0
Oregon	219	34	1.3	178	97.8	5	0.9	2	0.0
Pennsylvania	500	2	0.0	498	100.0	0	0.0	0	0.0
Rhode Island	36	4	1.5	31	97.5	0	0.0	1	1.0
South Carolina	95	2	0.1	91	99.6	1	0.1	1	0.2
South Dakota	173	7	0.9	166	99.1	0	0.0	0	0.0
Tennessee	138	14	2.4	124	97.6	0	0.0	0	0.0
Texas	1,043	67	0.3	975	99.7	0	0.0	1	0.1
Utah	40	0	0.0	40	100.0	0	0.0	0	0.0
Vermont	251	185	44.1	35	31.4	30	22.7	1	1.8
Virginia	132	1	0.0	131	100.0	0	0.0	0	0.0
Washington	296	47	1.0	248	99.0	0	0.0	1	0.0
West Virginia	55	0	0.0	55	100.0	0	0.0	0	0.0
Wisconsin	426	47	2.6	368	96.2	11	1.2	0	0.0
Wyoming	49	2	0.6	47	99.4	0	0.0	0	0.0
Outlying areas									
DOD Dependents	12	0	0.0	12	100.0	0	0.0	0	0.0
American Samoa	1	0	0.0	1	100.0	0	0.0	0	0.0
Guam	1	0	0.0	1	100.0	0	0.0	0	0.0
Northern Marianas	1	0	0.0	1	100.0	0	0.0	0	0.0
Puerto Rico	1	0	0.0	1	100.0	0	0.0	0	0.0
Virgin Islands	1	0	0.0	1	100.0	0	0.0	0	0.0

NOTE: Grade span is determined by the highest and lowest grades for which student membership is reported among all schools associated with the district. Other includes all grade configurations not represented in the other categories and includes ungraded districts. Table excludes 419 regular school districts for which no students were reported in membership. Department of Defense school districts are classified as regular districts. U.S. totals exclude the outlying areas. New Jersey data are estimated. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, Agency and School Universes, 1996–97.

Table 5.—Distribution of regular public elementary and secondary school districts and students, by district membership size: School year 1996–97

District membership size	Number of districts	Percentage of districts	Percentage of students
United States	14,422	100.0	100.0
100,000 or more	24	0.2	12.1
25,000 to 99,999	202	1.4	19.0
10,000 to 24,999	571	4.0	18.7
7,500 to 9,999	322	2.2	6.1
5,000 to 7,499	700	4.9	9.4
2,500 to 4,999	2,070	14.4	15.9
2,000 to 2,499	849	5.9	4.2
1,500 to 1,999	1,110	7.7	4.2
1,000 to 1,499	1,580	11.0	4.3
800 to 999	834	5.8	1.6
600 to 799	939	6.5	1.4
450 to 599	941	6.5	1.1
300 to 449	1,121	7.8	0.9
150 to 299	1,434	9.9	0.7
1 to 149	1,725	12.0	0.3

NOTE: Table includes the 50 states and the District of Columbia, and excludes 419 regular school districts for which no students were reported in membership. Percentages are rounded to the nearest tenth and may not add to 100. New Jersey data are estimated.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, Agency Universe, 1996–97.

Student Characteristics

Because participation in the Free Lunch Program depends on income, eligibility for this program is often used to estimate student needs. Eight states did not report free lunch eligibility data for at least 70 percent of their schools, so national totals could not be calculated. Within those states and schools that did provide this information, the proportion of students who were reported as eligible to receive free lunch ranged from a low of 12.4 percent in New Hampshire to a high of 69.3 percent in the District of Columbia. In all, eight states reported that 40 percent or more of their public school students were eligible for free lunch (table 6).

Two states did not report the number of students with individual education programs (IEPs), who participate in special education services. Among the states for which this information was available, the percentage of students with IEPs ranged from less than 5 percent in Michigan and Ohio to 15 percent or more in Massachusetts, Missouri, Rhode Island, and West Virginia.

About two-thirds of the public school students in the United States in 1996–97 were white, non-Hispanic, and about one-sixth were black, non-Hispanic. American Indian–Alaska Native students constituted about one-fourth of the student membership in Alaska, while almost two-thirds of the students in Hawaii were in the Asian–Pacific Islander category. About one in seven students nationwide was Hispanic. More than one-third of the students were Hispanic in California, New Mexico, and Texas. Over half of the students were black, non-Hispanic in the District of Columbia (87.3 percent) and Mississippi (50.9 percent). White, non-Hispanic students made up less than half of the

Table 6.— Selected characteristics of public elementary and secondary school membership as a percentage of school membership by state: School year 1996–97

State	Eligible for free lunch	With individual education program	American Indian–Alaska Native	Asian–Pacific Islander	Hispanic	Black, Non-Hispanic	White, Non-Hispanic
United States	—	—	1.2	3.7	14.1	17.0	64.0
Alabama	38.8	13.1	0.7	0.6	0.7	36.6	61.4
Alaska	24.6	3.8	24.8	4.5	2.9	4.7	63.1
Arizona	—	9.7	7.2	1.8	30.2	4.3	56.6
Arkansas	36.4	10.4	0.4	0.7	1.8	23.7	73.3
California	47.8	10.5	0.9	11.2	39.7	8.7	39.5
Colorado	22.4	9.9	1.1	2.6	18.8	5.5	72.0
Connecticut	20.3	14.6	0.3	2.6	11.9	13.5	71.8
Delaware	29.9	12.0	0.2	1.8	4.3	29.9	63.9
District of Columbia	69.3	8.5	0.1	1.4	7.2	87.3	3.9
Florida	37.1	13.4	0.2	1.8	15.9	25.4	56.7
Georgia	42.8	10.3	0.1	1.7	2.6	37.6	57.9
Hawaii	29.7	8.5	0.4	63.9	8.8	2.9	24.0
Idaho	23.6	10.2	1.3	1.2	7.8	0.6	89.1
Illinois	—	11.6	0.1	3.1	12.7	21.1	63.0
Indiana	22.1	14.0	0.2	0.8	2.4	11.2	85.4
Iowa	20.4	12.9	0.5	1.6	2.3	3.4	92.2
Kansas	31.5	11.7	1.1	1.9	6.5	8.6	81.9
Kentucky	40.3	—	0.1	0.6	0.5	10.0	88.8
Louisiana	49.2	11.1	0.6	1.3	1.2	46.4	50.6
Maine	24.5	14.0	0.6	0.9	0.4	0.9	97.2
Maryland	25.6	12.7	0.3	3.9	3.5	35.6	56.7
Massachusetts	—	17.0	0.2	4.0	9.6	8.4	77.9
Michigan	26.5	4.0	1.0	1.6	2.8	18.9	75.7
Minnesota	19.4	12.4	2.0	4.2	2.2	5.2	86.4
Mississippi	55.5	13.2	0.5	0.6	0.4	50.9	47.7
Missouri	28.0	15.2	0.3	1.0	1.1	16.7	80.9
Montana	23.9	11.6	9.9	0.8	1.5	0.5	87.2
Nebraska	21.0	13.9	1.4	1.3	4.9	6.0	86.4
Nevada	25.4	10.6	1.9	4.6	18.8	9.6	65.1
New Hampshire	12.4	13.5	0.2	1.1	1.3	1.0	96.4
New Jersey	—	—	0.2	5.3	13.5	18.5	62.5
New Mexico	—	13.8	10.5	1.0	47.5	2.4	38.7
New York	38.4	12.9	0.5	5.2	17.6	20.3	56.4
North Carolina	30.4	12.6	1.5	1.5	2.3	30.8	63.9
North Dakota	21.2	10.6	8.1	0.7	1.1	0.9	89.1
Ohio	24.7	3.7	0.1	1.0	1.4	15.4	82.0
Oklahoma	36.7	11.4	15.1	1.3	4.3	10.5	68.8
Oregon	24.4	11.0	2.1	3.4	7.4	2.5	84.6
Pennsylvania	—	10.6	0.1	1.8	3.7	14.2	80.2
Rhode Island	28.0	17.3	0.5	3.3	10.7	7.3	78.3
South Carolina	40.0	11.7	0.2	0.8	0.8	41.6	56.6
South Dakota	25.1	11.0	13.8	0.8	0.8	1.0	83.7
Tennessee	—	14.0	0.3	1.2	1.0	23.5	74.0
Texas	39.9	11.8	0.3	2.4	37.4	14.3	45.6
Utah	18.8	11.2	1.5	2.4	6.0	0.7	89.4
Vermont	19.9	10.1	0.6	1.0	0.4	0.8	97.3
Virginia	25.6	13.1	0.2	3.6	3.4	26.8	66.0
Washington	—	11.1	2.7	6.7	8.3	4.8	77.5
West Virginia	40.6	15.6	0.1	0.3	0.5	4.0	95.2
Wisconsin	20.2	12.5	1.3	2.9	3.5	9.6	82.6
Wyoming	20.0	11.8	2.8	0.8	6.2	1.2	89.0
Outlying areas							
DOD Dependents	—	8.5	1.0	10.0	8.6	21.6	58.8
American Samoa	94.9	2.5	0.0	100.0	0.0	0.0	0.0
Guam	23.3	6.5	0.1	92.6	0.9	1.2	5.3
Northern Marianas	37.6	4.0	0.0	99.2	0.0	0.0	0.8
Puerto Rico	82.3	6.8	0.0	0.0	100.0	0.0	0.0
Virgin Islands	63.6	4.7	0.0	0.2	14.0	84.6	1.1

NOTE: Data are shown as — if reported for less than 70 percent of schools or agencies. Percentages are based on schools and agencies reporting. National percentages were not imputed if data were missing for one or more states. New Jersey data are estimated. U.S. totals exclude outlying areas. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, School and Agency Universes, 1996–97.

Table 7.— Number and percentage of students dropping out of grades 9 through 12, and percentage who were male or minority among reporting states: School year 1995–96

State	Among grade 9–12 students Number of dropouts	Among grade 9–12 students Percent dropping out	Among grade 9–12 dropouts Percent male	Among grade 9–12 dropouts Percent minority
Alabama	11,573	5.6	57.3	40.3
Arkansas	5,305	4.1	57.9	37.3
California	58,150	3.9	55.3	74.4
Connecticut	6,152	4.8	57.0	52.3
Delaware	1,404	4.5	59.8	40.6
Georgia	29,284	8.5	59.0	46.8
Hawaii	2,406	4.7	60.1	66.4
Indiana	10,232	3.5	57.2	20.4
Iowa	4,791	3.1	57.9	16.4
Kansas	6,335	4.7	56.5	30.3
Louisiana	24,986	11.6	56.9	53.9
Maine	1,805	3.1	61.5	2.9
Massachusetts	8,079	3.3	58.1	36.3
Minnesota	12,434	5.3	58.0	30.7
Mississippi	8,487	6.2	59.3	56.5
Missouri	16,753	6.6	58.1	28.2
Montana	2,697	5.6	58.2	18.5
Nebraska	3,924	4.5	57.5	29.8
Nevada	6,647	9.6	55.6	41.5
New York	29,169	3.7	55.9	64.7
North Dakota	916	2.5	60.4	29.8
Ohio	29,264	5.4	60.2	33.8
Oregon	10,318	7.0	56.0	22.5
Pennsylvania	20,776	4.0	57.7	42.5
Rhode Island	1,849	4.6	58.2	31.8
South Carolina	5,297	2.9	60.1	50.1
Utah	6,546	4.4	54.3	22.7
West Virginia	3,641	3.8	57.7	4.9
Wyoming	1,752	5.7	57.2	17.5
Outlying areas				
Puerto Rico	2,509	1.5	49.0	100.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, Agency Universe, 1996–97.

student membership in six states, but represented 90 percent or more of the students in five other states. At the national level, none of the racial-ethnic groups changed by as much as 1 percent over the previous year.

Dropouts

Twenty-nine states and Puerto Rico reported dropout statistics in agreement with the required definition (table 7).[3] Among these jurisdictions, Louisiana reported that more than 10 percent of students in grades 9 through 12 had dropped out during the preceding school year. North Dakota, South Carolina, and Puerto Rico reported dropout rates among these grades at less than 3 percent. Fourteen states had dropout rates somewhere between 4 and 6 percent. Dropouts were more likely to be male than female. In fact, only in Utah were less than 55 percent of the grade 9–12 dropouts male. In seven states, half or more of the dropouts were minority students, that is, other than white, non-Hispanic.

Data sources: The following components of the NCES 1996–97 Common Core of Data (CCD): Public School Universe, Local Education Agency Universe, and State Aggregate Nonfiscal Report.

For technical information, see the complete Statistics in Brief:

Hoffman, L. (1998). *Overview of Public Elementary and Secondary Schools and Districts: School Year 1996–97* (NCES 98-204).

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To obtain the Statistics in Brief (NCES 98-204), call the toll-free ED Pubs number (877-433-7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202-512-1800).

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[3] A dropout was defined as a student who was enrolled at any time during 1995–96, was not enrolled at the beginning of 1996–97, and had not graduated or transferred to another school.

Postsecondary Education

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American Indians and Alaska Natives in Postsecondary Education

D. Michael Pavel, Rebecca Rak Skinner, Elizabeth Farris,
Margaret Cahalan, John Tippeconnic, and Wayne Stein

This article is a summary based on the report of the same name. The numerous data sources are listed at the end of this article.

Data on Native Americans in postsecondary education can be hard to find. Part of the problem lies in the relatively small size of the Native American population, which leads to special difficulties in collecting and analyzing data. Compounding these problems is the fact that respondents may not answer consistently each time they are asked to identify their racial-ethnic group. Research has indicated that Native Americans make up the least stable racial-ethnic group in terms of self-identification.

This report provides a comprehensive compilation of data on Native American participation in postsecondary education. By pulling together and discussing data from many sources, the report presents a portrait of American Indians and Alaska Natives involved in all facets of higher education—as undergraduate students, graduate students, and faculty. The focus is on Native American involvement at 4-year and 2-year colleges and universities. Concluding the report is a detailed discussion of tribally controlled colleges, which play an important role in Native American higher education.

Demographic Background

Tremendous growth in population

Between 1900 and 1990, the number of Native Americans[1] recorded in the decennial census increased from about 237,000 people to slightly less than 2 million, and their proportion of the total U.S. population increased from 0.3 percent to 0.8 percent. Most of this tremendous growth occurred from 1970 to 1990, with an increase of 1.2 million people. Some of the growth is due to more self-identification by individuals with their Native American heritage.

Differences from overall U.S. population

Compared with the overall population, Native Americans in 1990 were

- more likely to be under the age of 18 (36 percent of Native Americans, compared with 26 percent of the total population);
- more likely to live in the western United States (48 percent of Native Americans, compared with 21 percent of the total population);

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[1] The terms "Native American" and "American Indian and Alaska Native" are used interchangeably throughout this article.

- less likely to live in urban areas (56 percent, compared with 75 percent of the total population);
- more likely to have lower family incomes ($21,750 median family income among all Native American families, compared with $35,225 among all families nationwide);
- more likely to live in poverty (17 percent of married-couple families among Native Americans, for example, compared with 6 percent of married-couple families overall); and
- more likely to have lower levels of educational attainment, despite recent gains.

Continuing gap in educational attainment

Between 1980 and 1990, Native Americans improved their overall level of educational attainment. For example, the percentage of Native Americans 25 years and older who had completed high school increased from 56 percent to 66 percent. Despite recent improvements, however, Native American educational attainment continued to lag behind that of the total population. In 1990, 66 percent of Native Americans had completed high school, compared with 75 percent of the total population. Among Native Americans, 9 percent had attained a bachelor's degree or higher, compared with 20 percent among the general population. Only 3 percent of Native Americans held graduate or professional degrees, compared with 7 percent of the total population.

Variation in attainment across tribes

Educational attainment varied widely across tribes, with the high school completion rate ranging from 94 percent for the Coos tribe to 29 percent for the Miccosukee tribe. Among Native Americans 25 years or older living on Indian reservations, 54 percent had earned a high school diploma by 1990.

Access to Higher Education

Probable growth in college enrollment

An improved rate of high school completion, coupled with the large proportion of Native Americans under the age of 18, suggests that an increasing number of American Indians and Alaska Natives will be eligible for college enrollment in the coming years.

Graduation and college application at BIA-tribal schools

In 1993–94, nearly half a million (491,939) Native American students were enrolled in public elementary and secondary schools. About 9 percent of these students attended BIA-tribal schools, which are funded by the Bureau of Indian Affairs, operated by either that agency or a tribal organization, and attended almost exclusively by Native Americans. An additional 38 percent of Native American students attended schools with "high Indian enrollment" (at least 25 percent Native American).

At BIA-tribal schools, the percentage of high school seniors who graduated increased slightly between 1989–90 and 1992–93, from 82 percent to 86 percent. The graduation rate at high Indian enrollment and low Indian enrollment schools was 91 percent for 1992–93 seniors.

From 1990–91 to 1993–94, the percentage of high school seniors applying to college rose at BIA-tribal schools. While about one-third of seniors at BIA-tribal schools applied to college in 1990–91, the percentage applying to college had increased to almost one-half (47 percent) by 1993–94. High Indian enrollment schools had a 1993–94 application rate of 45 percent, while low Indian enrollment schools had an application rate of 58 percent.

Progress on admissions criteria

College admissions officers often consider criteria such as applicants' high school coursework and grade point average, scores on a standardized entrance exam (SAT or ACT), and extracurricular activities. While Native Americans continue to lag behind national averages in each of these measures, they have made improvements in many areas since the 1970s.

In 1983, the National Commission on Excellence in Education recommended that all high school students complete a core curriculum of 4 units of English; 3 units each of science, social studies, and mathematics; and 0.5 units of computer science. From 1982 to 1992, completion of a recommended precollege curriculum[2] increased from 6 percent to 31 percent among Native American high school graduates. During the same period, completion of the recommended precollege curriculum increased from 13 percent to 47 percent among all high school graduates.

Average SAT scores among American Indians and Alaska Natives electing to take the exam have increased over the past 20 years. In 1976, Native Americans had an average combined verbal and mathematics score of 808 on the SAT exam. By 1995, the average score had reached 850, an increase of 42 points over 1976. In 1995, the national average SAT score was 910, an increase of only 7 points over 1976 scores. Native American ACT scores have also improved in recent years.

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[2] The recommended precollege curriculum is the same as the core curriculum, except that it does not include 0.5 units of computer science and does include 2 units of foreign language.

Continuing gap in competitiveness

Analysis of a sample of 1992 college-bound high school graduates revealed that the Native American students were, on average, less competitive for the college admissions process than the overall sample. For example, among the college-bound Native American high school graduates

- only 2 percent had a combined SAT score of 1,100 or higher, compared with 22 percent of all college-bound graduates;
- only 24 percent had completed a precollege curriculum,[3] compared with 56 percent of all college-bound graduates; and
- only 5 percent had at least a 3.5 grade point average. Nationwide, 19 percent of college-bound graduates had at least a 3.5 grade point average.

Enrollment in Higher Education

Increased enrollment, especially by women

From 1976 to 1994, the number of Native Americans enrolled in institutions of higher education (IHEs)[4] jumped from 76,000 to 127,000, an increase of 67 percent. During the same period, overall enrollment in IHEs increased 30 percent.

Increased enrollment by women was the main reason for substantial gains in enrollment levels from 1976 to 1994. Among Native American women, enrollment increased 98 percent, from 37,600 to 74,400. Overall enrollment by women increased 52 percent. During the same period, Native American male enrollment rose only 38 percent and total male enrollment rose only 10 percent. As a result of these changes, by 1994 women composed the majority of both Native American enrollment (58 percent) and overall enrollment (59 percent).

Continuing concentration in 2-year and public institutions

From 1976 to 1994, Native American enrollment at 4-year institutions increased at a higher rate (75 percent) than at 2-year institutions (61 percent). For students overall, the enrollment pattern was the opposite, with greater increases at 2-year institutions. The increased rate of Native American enrollment at the 4-year level did not, however, result in a significant increase in the proportion of Native American students attending 4-year institutions (46 percent in 1976 and 48 percent in 1994). Among the general student population, the majority attended 4-year colleges in both years (65 percent in 1976 and 61 percent in 1994).

From 1976 to 1994, Native American enrollment increased 93 percent at private institutions and 64 percent at public institutions. However, these percentage increases resulted in a gain of only 8,000 Native American students at private schools, versus a gain of 43,200 at public schools. Among the general student population, private school enrollment increased by 34 percent (800,500 students), while public school enrollment increased by 29 percent (2.5 million students).

In 1994, Native American students continued to attend public institutions at a higher rate than students overall (87 percent of Native American students, compared with 78 percent of all students). This difference could be driven by the fact that the majority of Native Americans attended 2-year institutions, which are generally public institutions.

Concentration in associate's degree programs

During the 1992–93 academic year, 51 percent of Native American undergraduates were enrolled in associate's degree programs, compared with only 39 percent of undergraduates overall. Native Americans were less likely to enroll in bachelor's degree programs. Thus, only 31 percent of Native Americans were enrolled in bachelor's degree programs, compared with 43 percent of all undergraduates.

Greater representation as undergraduates than in total population

Between 1976 and 1994, Native American enrollment at all degree levels increased by larger percentages than did overall enrollment. Due to these increases, Native American students have moved closer to achieving the same level of representation at the graduate and first-professional degree levels as they have in the total population. At the undergraduate level, American Indians and Alaska Natives have exceeded their representation in the population—1 percent of undergraduate enrollment and 0.8 percent of the total population.

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[3] This analysis is limited to college-bound high school graduates.

[4] IHEs are postsecondary institutions that are accredited at the college level by an agency recognized by the U.S. Department of Education.

Concentration of enrollment in areas with large Native American populations

In 1994, the five IHEs enrolling the largest numbers of Native Americans were located in three states—New Mexico, Oklahoma, and Arizona. Each of these states ranked among the top four in terms of total Native American population.

Five states—Arizona, California, Oklahoma, New Mexico, and Washington—had statewide enrollments of more than 5,000 Native American postsecondary students in 1994. Native Americans exceeded 5 percent of total postsecondary enrollment in six states—Alaska, Montana, New Mexico, North Dakota, Oklahoma, and South Dakota.

Degrees Conferred and Recipient Characteristics

Increase in degrees, especially for women

From 1976–77 to 1993–94, the number of degrees that IHEs awarded to Native Americans jumped from 7,082 to 13,366, an increase of 89 percent (table A). During the same period, the overall number of IHE degrees rose from 1.7 million to 2.2 million, an increase of 27 percent. Among Native Americans and all degree recipients, the rate of increase was higher for women than for men. By 1986–87, consequently, women constituted the majority of IHE degree recipients both among Native Americans and overall. By 1993–94, women received 59 percent of IHE degrees awarded to Native Americans and 55 percent of all IHE degrees.

At all degree levels, the percentage increase in degrees awarded between 1976–77 and 1993–94 was larger for Native Americans than for total IHE recipients. Thus, the number of associate's degrees conferred increased by 95 percent for Native Americans, compared with 31 percent for all recipients. The number of bachelor's degrees increased by 86 percent for Native Americans, compared with 27 percent for degree recipients overall.

At the graduate level, the number of master's degrees and first-professional degrees awarded to Native Americans increased by 76 percent and 89 percent, respectively, compared with increases of 22 percent and 18 percent for all degree recipients. The 41 percent increase in Native American doctoral degree recipients was more similar to the 30 percent increase experienced by the nation.

At all degree levels, the percentage increase in degrees awarded between 1976–77 and 1993–94 was larger for women than for men. This pattern held for Native American degree recipients as well as all IHE degree recipients. Among Native Americans, for example, the rate of increase in bachelor's degrees was 135 percent for women and 45 percent for men. By 1993–94, Native American women were awarded 58 percent of all bachelor's degrees earned by Native Americans. Native American women also earned the majority of associate's, master's, and doctor's degrees. Their share of first-professional degrees increased from 19 percent in 1976–77 to 40 percent in 1993–94.

Continuing gap in share of degrees above associate's level

Native Americans received 13,366, or about 0.6 percent, of the 2.2 million degrees awarded by IHEs in 1993–94 (table A). This represents an increase from the 0.4 percent of all degrees that were earned by American Indians and Alaska Natives in 1976–77. While some increase occurred in Native Americans' share of each degree type, the smallest increase occurred among doctor's degrees (from 0.29 percent in 1976–77 to 0.31 percent in 1993–94). The greatest share increase was in associate's degrees (from 0.6 percent in 1976–77 to 0.9 percent in 1993–94).

Native American increases in degree attainment, while consistent with rising shares of American Indian and Alaska Native enrollment, do not yet match enrollment shares. Attainment increases have also failed to keep pace with Native American population growth. By 1994, Native Americans composed 1 percent of all Americans 20 to 24 years old, the ages when college graduation typically occurs. Native Americans matched this population representation only in their share of associate's degrees (0.9 percent). At all other degree levels, they did not attain a share of degrees equal to their share of the population aged 20 to 24.

Considering all degrees taken together, Native Americans were somewhat more likely to receive associate's degrees and less likely to obtain bachelor's, master's, or doctor's degrees than all students in IHEs. Among American Indian and Alaska Native recipients in 1993–94, 47 percent received bachelor's degrees; 37 percent, associate's degrees; 13 percent, master's; and 1 percent, doctor's degrees. Among all degree recipients, the majority (53 percent) received bachelor's degrees; 24 percent received associate's degrees; 18 percent, master's degrees; and 2 percent, doctor's degrees.

Table A.—Total degrees awarded to American Indian and Alaska Native degree recipients and total degree recipients in institutions of higher education, by degree level: 1976–77 and 1993–94

	1976–77			1993–94		
		American Indian and Alaska Native			American Indian and Alaska Native	
Degree level	Total	Total	Percent	Total	Total	Percent
Total	1,736,537	7,082	0.4	2,210,882	13,366	0.6
Associate's degrees	404,956	2,498	0.6	529,106	4,871	0.9
Bachelor's degrees	917,900	3,326	0.4	1,165,973	6,189	0.5
Master's degrees	316,602	967	0.3	385,419	1,697	0.4
Doctor's degrees	33,126	95	0.3	43,149	134	0.3
First-professional degrees	63,953	196	0.3	75,418	371	0.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards Conferred" survey, 1976–77; and Integrated Postsecondary Education Data System (IPEDS), "Completions" survey, 1993–94. As published in *Digest of Education Statistics: 1996* (NCES 96–133), tables 256, 259, 262, 265, and 268, pp. 283, 286, 289, 292, and 295; and *Digest of Education Statistics: 1997* (NCES 98–015), tables 262, 265, 268, 271, and 274, pp. 292, 298, 301, and 304.

Concentration of conferrals in areas where many Native Americans live

Considering all higher education degrees (associate's, bachelor's, master's, and doctor's), the five institutions awarding the most degrees to American Indians and Alaska Natives in 1993–94 were located in two states, Oklahoma and Arizona. These states also ranked first and third, respectively, in total American Indian and Alaska Native population. In terms of bachelor's degrees awarded to Native Americans, the three top colleges were all in Oklahoma.

A large proportion of American Indian and Alaska Native degree recipients were also found in California, New Mexico, and Washington, all of which have large Native American populations. Reflecting the small number of American Indian and Alaska Native degree recipients nationwide, only 31 colleges and universities awarded more than 50 degrees to Native Americans in 1993–94.

Bachelor's degree recipients—characteristics and outcomes

Characteristics. Thirty-one percent of Native American recipients in 1992–93 began their studies at a 2-year institution, and 73 percent attended more than one institution before graduating. Additionally,

- 82 percent of 1992–93 Native American bachelor's degree recipients graduated from a public institution, and 65 percent of all bachelor's degree recipients graduated from a public institution;
- 41 percent of Native American bachelor's degree recipients graduated from a doctoral-granting institution, and 55 percent of all bachelor's degree recipients graduated from a doctoral-granting institution; and
- 9 percent of Native American bachelor's degree recipients were enrolled full time 1 year after bachelor's degree completion, and 12 percent of all bachelor's degree recipients were enrolled full time 1 year after degree completion.

Outcomes. Profiles of bachelor's degree recipients indicate that American Indian and Alaska Natives have employment and educational outcomes that are quite similar to those for the total population. For example, 87 percent of both Native American and all bachelor's degree recipients were employed 1 year after graduation. In 1994, the average annual salary of 1992–93 bachelor's degree recipients was $24,400 for Native Americans and $24,200 for all graduates.

Financial Aid

Aid to undergraduates

During the 1992–93 academic year, about 62 percent of American Indian and Alaska Native undergraduates needed financial assistance to attend postsecondary institutions. Most of these students received some form of financial assistance in the form of grants, loans, or work-study. The percentage of all undergraduates who needed and received financial aid in 1992–93 was similar.

The federal government is the most common source of aid for Native American undergraduates, with 34 percent receiving some type of federal financial aid. The most common type of federal aid awarded to Native American undergraduates came in the form of grants, followed by a combination of grants and loans.

Sources of federal aid

The Office of Postsecondary Education is the main provider of federal aid for both Native American undergraduates and undergraduates overall. The federal government also offers several grant and scholarship programs designed specifically to provide aid to Native American students at both the undergraduate and graduate levels. These programs are administered by the Bureau of Indian Affairs and the Indian Health Service. Each of the programs encourages Native American students to pursue postsecondary degrees, but most stipulate specific fields in which study must occur.

Doctorate funding and debt

Among 1994 doctorate recipients, more than half (55 percent) of Native Americans paid for their education using personal funds, compared with 46 percent of all U.S. citizen doctorate recipients. Native Americans also tended, however, to earn degrees in fields where all racial-ethnic groups had a greater reliance on personal funding, such as social sciences, humanities, and education.

Among Native American doctorate recipients, 61 percent graduated owing money for their education and 28 percent owed more than $15,000. Among all U.S. citizen doctorate recipients, 55 percent graduated with debt and 20 percent owed more than $15,000.

Staff and Faculty

Increase in staff, especially women

From 1983 to 1993, the number of Native Americans employed as full-time staff at IHEs grew from 6,735 to 9,229, an increase of 37 percent. Full-time employment among all IHE staff increased by about 12 percent during the same period. Among Native Americans and all staff, the rate of increase was higher for women than for men. Thus, the number of full-time staff increased 77 percent for Native American women and 20 percent for women overall. For men, the increase was 9 percent for Native Americans and 5 percent overall. By 1993, Native American women held 53 percent of all full-time IHE positions held by Native Americans.

In each higher education occupational category, employment among Native Americans grew faster than among the overall population from 1983 to 1993. Positions classified as professional experienced the most growth among both populations, although the rates of growth were higher for Native Americans. For example, full-time professional (support and service) staff increased by 78 percent among Native Americans, compared with 39 percent overall. Full-time executive, administrative, and managerial staff increased by 69 percent among Native Americans, compared with 17 percent overall. Despite these gains, Native Americans' 1993 share of professional positions remained lower than their share of other positions at IHEs (table B).

Table B.—Distribution of Native American and total full-time staff in institutions of higher education, by primary occupation: Fall 1993

Primary occupation	Total	American Indian and Alaska Native	
		Total	Percent
All staff	1,783,510	9,229	0.5
Professional staff			
Executive, administrative, and managerial	137,834	726	0.5
Faculty	545,706	1,997	0.4
Professional (support and service)	355,554	1,723	0.5
Nonprofessional staff			
Technical and paraprofessional	142,846	842	0.6
Clerical and secretarial	351,962	2,026	0.6
Skilled crafts	60,926	474	0.8
Service and maintenance	188,682	1,441	0.8

NOTE: Instruction and research assistants are defined as part-time only.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Fall Staff" survey, 1993. As published in *Fall Staff in Postsecondary Institutions, 1993* (NCES 96-323), tables 5 and B-1f, pp. 18 and 72.

Increase in faculty, especially women

From 1983 to 1993, full-time faculty positions grew by 53 percent among Native Americans, compared with 12 percent overall. As with other higher education occupations, the rate of growth was greater for women, both among Native Americans and overall. For example, the number of full-time faculty increased 112 percent for Native American women and 41 percent for women overall. The increase was 30 percent for Native American men and 2 percent for men overall. By 1993, women made up 38 percent of American Indian and Alaska Native full-time faculty and 33 percent of the total IHE full-time faculty.

Full-time and part-time faculty

In 1993, about the same proportion of faculty were employed full time among Native Americans and overall (59 and 60 percent, respectively). At 2-year institutions, however, Native American faculty were somewhat more likely than overall faculty to be employed full time (47 percent and 36 percent, respectively).

Concentration of faculty in 2-year and public institutions

American Indian and Alaska Native faculty were more likely than overall faculty to be employed in public and 2-year institutions. About 84 percent of all (full- and part-time) Native American faculty were employed in public institutions, compared with about 71 percent of total faculty. Among all American Indian and Alaska Native faculty, about 49 percent were in 2-year institutions, compared with 32 percent of total faculty. Among full-time faculty, 39 percent of Native Americans, compared with 19 percent of total faculty, were employed in 2-year institutions.

Disparities in salary, rank, and tenure status

In 1993, the median 9- to 10-month full-time contract salary for American Indians and Alaska Natives was $39,118, compared with $43,205 for total full-time faculty. Thus, median salaries for Native American full-time faculty were 91 percent of median salaries for full-time faculty overall. The smallest differences were in 2-year institutions, where Native American median salaries were 98 percent of those earned by total full-time faculty. The largest differences were in private institutions, where Native American salaries were 82 percent of those for all full-time faculty.

About 29 percent of the total IHE full-time faculty were full professors in 1993, compared with 18 percent of Native Americans. The largest percentage of American Indians and Alaska Natives held the rank of lecturer or instructor (33 percent). The rank distribution of Native American and Alaska Native faculty showed little change over time, with Native Americans making up 0.2 percent of full professors in both 1981 and 1993. The largest increase in Native Americans as a proportion of total faculty occurred in the rank of instructor (from 0.4 percent in 1981 to 0.9 percent in 1993).

In 1993, American Indian and Alaska Native faculty were the least likely to have tenure of any racial-ethnic group. Among Native Americans, about 38 percent of full-time faculty had tenure, compared with about 51 percent of all full-time faculty.

Concentration of faculty in areas with large Native American populations

In general, faculty tended to be located in the same areas where large numbers of Native Americans resided and attended IHEs. The largest numbers of American Indian and Alaska Native faculty were found in California (690), Oklahoma (257), and Texas (210), all of which have large Native American populations.

The largest percentage of American Indian and Alaska Native faculty were employed in four tribally controlled colleges, each with predominantly Native American enrollment.

Tribally Controlled Colleges

In 1968, Diné, Inc., an organization established by Native American political and education leaders, founded Navajo Community College, the first tribally controlled college to be created on a Native American reservation. The establishment of Navajo Community College encouraged a number of other tribes to found their own colleges, and the number of tribal colleges has steadily increased over the past 30 years. Today, there are 32 tribally controlled colleges in the United States. Generally located on or near Indian reservations, these institutions aim to preserve and communicate traditional culture, provide higher education and technical opportunities to tribal members, enhance economic opportunities within the reservation community, and promote tribal self-determination.

In 1972, the tribal colleges organized the American Indian Higher Education Consortium (AIHEC) to unify and strengthen the tribal college movement and to lobby for legislation and funding with the federal and state governments. The Tribally Controlled Community College Act of 1978, which provides partial funding for the tribal colleges, was one result of AIHEC's efforts.

Enrollment at tribal colleges

In the fall of 1994, tribal college enrollment reached almost 12,400 students. At 23 of the 25 tribal colleges reporting enrollment data by race-ethnicity in 1994, the majority of students were Native Americans. Altogether, Native American students accounted for more than 80 percent of tribal college enrollment (10,160 students). About 8 percent of all the Native American postsecondary students in the United States were enrolled at tribal colleges.

In 1994, Navajo Community College enrolled 1,899 Native American students—more than twice as many as any other tribal college. Among all IHEs, Navajo Community College tied for second in total number of Native Americans enrolled.

Degrees conferred at tribal colleges

In 1994, tribal colleges awarded 996 associate's degrees, 68 bachelor's degrees, and 9 master's degrees. About 77 percent of the associate's degrees, 81 percent of the bachelor's degrees, and 67 percent of the master's degrees were awarded to Native Americans.

Most tribal colleges continue to be community colleges, although some have expanded to 4-year institutions. Three tribal colleges awarded degrees at the bachelor's level or higher in 1994, and five were offering bachelor's degree programs by 1995.

Outcomes at tribal colleges

A 1983 AIHEC survey found a 75 percent greater completion rate among Indian students who completed a course of study at a tribal college before going on to a 4-year degree program at a nontribal institution than among Indian students who went directly to 4-year institutions. In addition, about 85 percent of tribal college graduates who stayed on the reservation were employed. These reservations historically have had unemployment rates of 45 to 80 percent.

Faculty at tribal colleges

In 1993, tribal colleges employed a total of 781 faculty, about 237 (or 30 percent) of whom were American Indians or Alaska Natives. At four tribal colleges, more than half the full-time faculty were Native Americans. About 7 percent of all Native American faculty in the United States, and about 8 percent of full-time Native American faculty, worked at tribal colleges in 1993.

Faculty at tribal colleges earn less, on average, than faculty at public community colleges. In 1995–96, for example, the average salary for faculty at tribal colleges was 71 percent of the average salary at 2-year public institutions ($27,401 as opposed to $38,573).

References

For an extensive bibliography, see appendices D and E of the complete report.

Data sources:

NCES: Baccalaureate and Beyond (B&B) Longitudinal Study; High School and Beyond (HS&B) Study; Higher Education General Information Survey (HEGIS; before 1986); Integrated Postsecondary Education Data System (IPEDS); National Education Longitudinal Study of 1988 (NELS:88); National Assessment of Educational Progress (NAEP); National Postsecondary Student Aid Survey (NPSAS); National Study of Postsecondary Faculty (NSOPF); Schools and Staffing Survey (SASS).

Other: ACT scores (American College Testing Program); decennial censuses (U.S. Bureau of the Census); EEO-6 Higher Education Staff Information survey (Equal Employment Opportunity Commission; before 1993); Persistence and Graduation surveys (National Collegiate Athletic Association); SAT scores (College Entrance Examination Board); Survey of Earned Doctorates (jointly sponsored by the National Science Foundation, U.S. Department of Education, National Endowment for the Humanities, U.S. Department of Agriculture, and National Institutes of Health).

For technical information, see the complete report:

Pavel, D.M., Skinner, R.R., Farris, E., Cahalan, M., Tippeconnic, J., and Stein, W. (1998). *American Indians and Alaska Natives in Postsecondary Education* (NCES 98–291).

Author affiliations: D.M. Pavel is affiliated with Washington State University; R.R. Skinner and E. Farris, with Westat, Inc.; M. Cahalan, with Mathematica Policy Research, Inc.; J. Tippeconnic, with Pennsylvania State University; and W. Stein, with Montana State University.

For questions about content, contact Martha Hollins (*Martha_Hollins@ed.gov*).

To obtain the complete report (NCES 98–291), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Credit Production and Progress Toward the Bachelor's Degree: An Analysis of Postsecondary Transcripts for Beginning Students at 4-Year Institutions

Alexander C. McCormick

This article was originally published as the Highlights section of the Statistical Analysis Report of the same name. The data are from the High School and Beyond Longitudinal Study (HS&B).

Except as noted, all findings reported below apply to a restricted population: high school graduates from the class of 1982 who expected to complete a bachelor's degree or higher, first enrolled at a 4-year institution, and had completed at least 10 semester credits at 2- and 4-year institutions by September 1993.[1] This group accounts for 59 percent of 1980 high school sophomores who had attended a 4-year institution by September 1993 and 68 percent of those who had completed a bachelor's degree.[2]

Earned credits reported in this section exclude credits completed while in high school, credits on transcripts at the General Education Development (GED) level, credits by examination, credits earned at less-than-2-year institutions, credit equivalents for clock-hour courses, and credits completed after the bachelor's degree.

First-Year Credit Production

On average, students in the target population completed about 27 semester credits in their first year. Fifty-five percent of students who enrolled at private, not-for-profit institutions completed at least 30 credits, as did 39 percent of those who enrolled at public institutions.

Students' academic preparation and test scores were related to the number of credits they completed in the first year, as was their academic performance in the first year. For example, about half of those who scored in the top quartile on the High School and Beyond (HS&B) cognitive test completed at least 30 credits, compared with one-third of those with scores in the middle quartiles and one-fifth of those who scored in the bottom quartile.

Credit Thresholds

The number of years students take to cross selected credit thresholds (30, 60, 90, and 120 credits) can be used to infer the minimum number of years that students may need to complete a 120-credit bachelor's degree (exclusive of other degree requirements). This information opens a window on enrolled time needed to attain a degree.

Almost all students in the analysis (95 percent) earned at least 30 credits. Forty-three percent did so in the first year, and about half (49 percent) earned their 30th credit in the second year. Relatively few (4 percent) took more than 2 years to complete 30 credits.

The percentage sustaining a 4-year pace was highest at the 30-credit threshold (43 percent), and then remained relatively stable for the subsequent thresholds at 36–38 percent. For each of the 60-, 90-, and 120-credit thresholds, attrition was at least four times more likely among students who reached the previous threshold at a 5-year or slower pace than among those who achieved the previous threshold at a 4-year pace.

Students who began at public institutions were more likely than their counterparts who began at private, not-for-profit institutions to cross each threshold at a pace implying at least 5 years for degree completion.

Credit and Degree Attainment Outcomes

Three out of four students in the analysis (76 percent) completed a bachelor's degree (averaging 132 credits). The remaining students were evenly split between those who completed fewer than 60 credits (averaging 37 credits) and those who completed 60 credits or more (averaging 91 credits).

---

[1] The 10-credit criterion excludes about 3 percent of students who were otherwise eligible for inclusion. A small number of included students graduated in a year other than 1982, but all were high school sophomores in 1980.

[2] U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study, Fourth Follow-up (HS&B:80–92).

Academic performance in the first year was strongly correlated with degree completion: the higher a student's first-year GPA, the more likely that student was to have received a bachelor's degree.

First-year credit production was positively related to total credit production: students who completed fewer than 20 credits in the first year (but at least 10 credits over the period of study) averaged 86 credits overall, while those who completed at least 30 credits in the first year averaged 128 credits over the full period studied. These differences are also reflected in the proportion of students who completed a bachelor's degree—from 45 percent among those with fewer than 20 credits in the first year to 91 percent among those who completed at least 30 credits in the first year.

Students who interrupted their enrollment (defined as those whose enrollment history includes a gap of two or more semesters, 19 percent of students in the analysis) were half as likely to complete a bachelor's degree as those who were continuously enrolled. Timing of the interruption also made a difference: students who interrupted during or immediately after the first year were least likely to have completed the degree (27 percent), while those who interrupted during or after the third year were most likely to have done so (43 percent).

Credit Production Among Bachelor's Degree Completers[3]

On average, bachelor's degree attainers completed 133 credits. Students who attended only 4-year institutions averaged 131 credits, while those who combined attendance at 4-year and less-than-4-year institutions averaged 140 credits. Students who received an associate's degree before their bachelor's degree completed an average of 148 credits, compared with 132 credits for those who did not first complete an associate's degree.

Students who majored in the humanities, social sciences, mathematics and computer science, and business completed fewer credits than average (125–130 credits). Those who majored in engineering and architecture and those who majored in health sciences and services completed more credits than average (145 and 142 credits, respectively).

Analysis of Credit Production After Controlling for Selected Characteristics

Multiple regression analysis suggests that, after controlling for a list of variables used in this report, socioeconomic background, test scores, first-year grades, first-year credit production, and summer-term enrollment are all positively related to overall credit production, while initial part-time enrollment and enrollment interruptions are negatively related to credit production.

Differences in credit production between students who began at public and at private, not-for-profit institutions appear to be related to differences in student characteristics rather than inherent differences between public and private, not-for-profit institutions.

Delayed entry into higher education does not appear to be related to credit production after controlling for a range of student and enrollment characteristics.

Data sources: The 1980–92 High School and Beyond Longitudinal Study (HS&B), Sophomore Cohort and Postsecondary Education Transcript Study (PETS).

For technical information, see the complete report:

McCormick, A.C. (1999). *Credit Production and Progress Toward the Bachelor's Degree: An Analysis of Postsecondary Transcripts for Beginning Students at 4-Year Institutions* (NCES 1999–179).

For details on HS&B fourth follow-up methodology, see

Zahs, D., Pedlow, S., Morrissey, M., Marnell, P., and Nichols, B. (1995). *High School and Beyond Fourth Follow-up Methodology Report* (NCES 95–426).

For details on the HS&B PETS data, see

Adelman, C. (1995). *The New College Course Map and Transcript Files.* U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Author affiliation: A.C. McCormick is affiliated with MPR Associates, Inc.

For questions about content, contact Aurora D'Amico (*Aurora_D'Amico@ed.gov*).

To obtain the complete report (NCES 1999–179), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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[3] Findings reported in this section are limited to high school graduates who expected to complete a bachelor's degree, but include students who first enrolled at less-than-4-year institutions.

OTHER PUBLICATIONS AND FUNDING OPPORTUNITIES

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Customer Service

1997 Customer Satisfaction Survey Report

Lori Thurgood, Steven Fink, Rita Bureika,
Julie Czarnecki Scott, and Sameena Salvucci

Customer surveys are one part of a larger National Center for Education Statistics (NCES) customer feedback system developed in response to the requirements of the Government Performance and Results Act, enacted in 1993. This report summarizes the results of the 1997 Customer Satisfaction Survey, which surveyed a sample of key NCES customers to determine their levels of satisfaction and needs related to NCES publications and reports, data files, and services. The survey also asked benchmarking questions about other organizations from which customers obtained education data.

Unlike the 1996 survey, which surveyed known customers across all categories of NCES customers, the 1997 survey targeted two important segments of the overall NCES customer base—education policymakers and researchers. The target population was divided into four groups: federal policymakers, state policymakers, local policymakers (who constituted 92 percent of the target population), and academic researchers. There were 2,948 eligible individuals in the sample; 84 percent (2,465) responded. The body of the report analyzes the responses to survey questions; appendices contain the survey itself and examine the survey methodology.

Author affiliations: The authors are affiliated with Synectics for Management Decisions, Inc.

For questions about this report, contact Arnold Goldstein (*Arnold_Goldstein@ed.gov*).

To obtain this report (NCES 1999–451), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Cooperative Systems

Best Practices for Data Collectors and Data Providers

Melodie Christal, Renee Gernand, Mary Sapp, and Roslyn Korb

This report, prepared for the National Postsecondary Education Cooperative (NPEC) by members of its Better Coordination of Data Working Group, addresses how to better coordinate data definitions and surveys on a national basis in order to achieve greater comparability and relieve institutional data burden. The best practices in this report have been endorsed by the board of directors of the Association for Institutional Research.

The report is divided into two sections. Section I, Best Practices for Data Collectors, covers the following topics: responsibilities of data collectors, designing and distributing data collection instruments, explanatory information, survey followup, and reporting and publication. In Section II, Best Practices for Data Providers, these topics are addressed: responsibilities of data providers, tips for providing consistent data, filling out the survey, and submitting and checking the survey. Appendices provide information about the NCES Integrated Postsecondary Education Data System (IPEDS), selected sources of postsecondary data definitions, a number of major higher education data sources, and selected references for designing and implementing surveys.

Author affiliations: M. Christal is affiliated with the State Higher Education Executive Officers; R. Gernand, with The College Board; M. Sapp, with the University of Miami; and R. Korb, with NCES.

For questions about this report, contact Roslyn Korb (*Roslyn_Korb@ed.gov*).

To obtain this report (NCES 1999–191), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Conference-Related

Federal Forecasters Directory 1998

Debra Gerald (editor)

This directory is a publication of the Federal Forecasters Conference. The conference, a collaborative effort of forecasters from federal agencies in the U.S. government, provides a forum for sharing information on forecasting issues. One of the conference's objectives is to build a core network of forecasters whose cooperation furthers the use of forecasting as an important tool in the 21st century. The current directory lists forecasters from both federal agencies and the private sector as of October 1, 1998.

Editor affiliation: D. Gerald is affiliated with NCES.

For questions about this directory, contact Debra Gerald (*Debra_Gerald@ed.gov*).

To obtain this directory (NCES 1999–023), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Funding Opportunities

Training

NCES is planning to conduct seminars on the following topics this year: (1) the analysis of National Assessment of Educational Progress (NAEP) databases, (2) the National Education Longitudinal Study of 1988 (NELS:88) and Early Childhood Longitudinal Study (ECLS) databases, and (3) the use of NCES analysis tools. In these seminars, participants will learn how to access and analyze the selected databases and gain further understanding about the nature and potential of the databases.

These seminars are open to faculty members and graduate students, as well as researchers and analysts from state and local education agencies and professional associations. Seminar dates and application procedures will be posted on the NCES Web Site this coming summer. Applicants who are selected to participate will receive travel expenses from NCES.

For more information, contact Samuel Peng (*Samuel_Peng@ed.gov*).

Grants

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training

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institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year.

For more information, contact Edith McArthur (*Edith_McArthur@ed.gov*).

The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage educational researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from $15,000 to $100,000.

For more information, contact Alex Sedlacek (*Alex_Sedlacek@ed.gov*).

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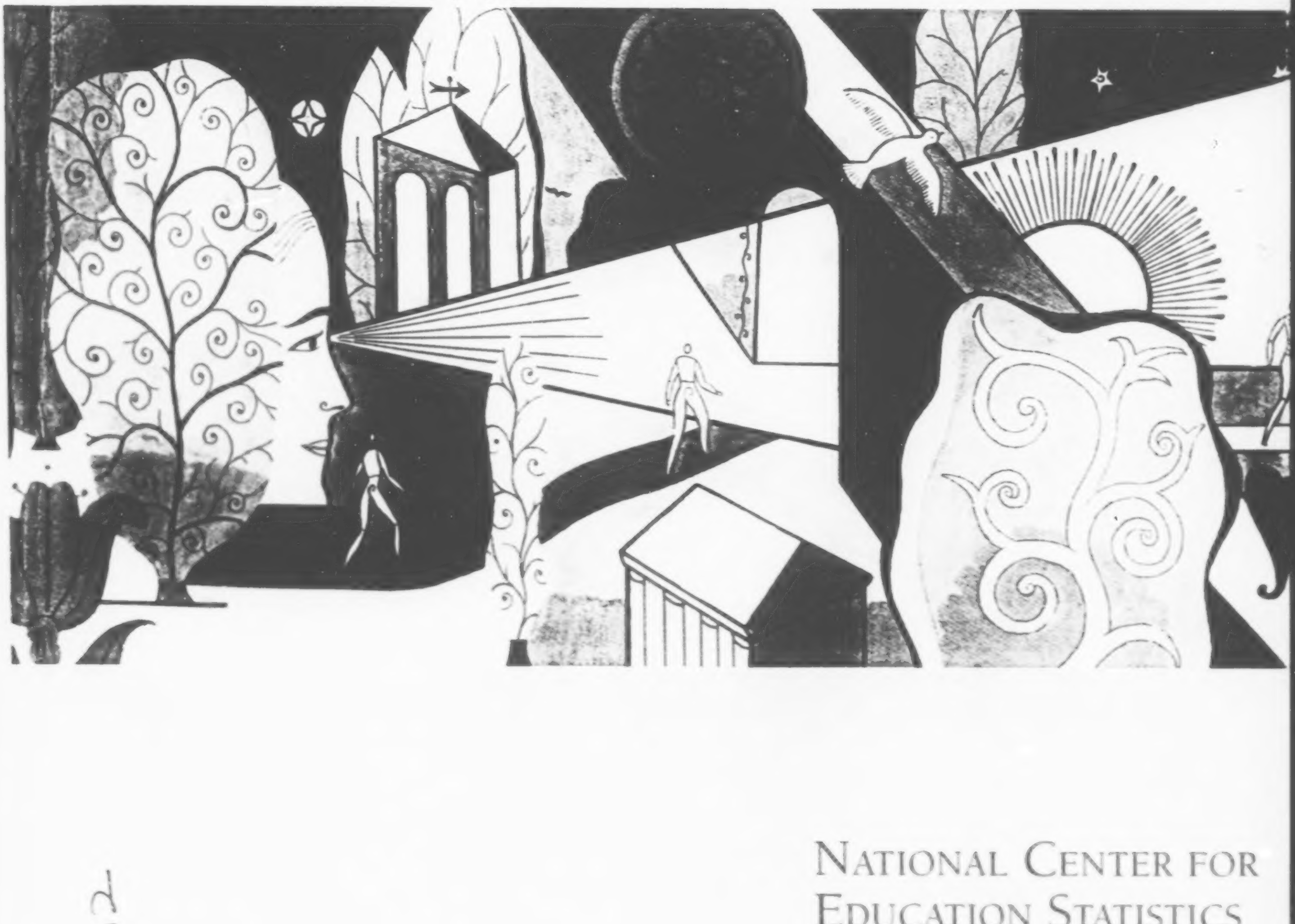

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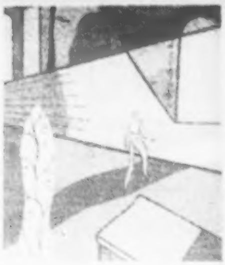

EDITORIAL NOTE

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report "statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education."

EDUCATION STATISTICS QUARTERLY

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

A complete annual index of NCES publications will appear in the Winter issue (published each January). Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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Measuring Inflation in Public Libraries: A Comparison of Two Approaches, the Input Cost Index and the Cost of Services Index
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Martin Orland, Associate Commissioner, Early Childhood, International, and Crosscutting Studies Division

Understanding Teaching and Learning in the Classroom

The featured topic in this issue focuses on the classroom and begins to address the questions "How are teachers delivering instruction to students?" and "How does this contribute to our overall understanding of children's educational success?" As pointed out by one of the commentators, the findings from the 1994–95 Teacher Follow-up Survey "are unique because they provide national estimates of the proportion of teachers from all grade levels and subject areas . . . who use various teaching strategies." Indeed, good measures of classroom instructional practices might not only improve teaching but might also increase our understanding of the link between background factors and educational achievement.

Recognizing the importance of this line of research, NCES is committed to expanding and improving the collection and analysis of data relevant to classroom instructional processes. The challenge of this pursuit for a statistical agency is that this information does not lend itself easily to traditional survey methodologies. Although the efforts we have made so far show promise, they do not yet provide the full range of information needed to adequately understand the process of teaching and learning in our nation's classrooms. To expand this understanding, NCES is pushing ahead on several fronts.

Video

Videotaping classroom activities has recently been incorporated into an NCES survey with promising results. The Third International Mathematics and Science Study (TIMSS) collected nationally representative videotaped records of eighth-grade mathematics lessons in Germany, Japan, and the United States. The next iteration of this study, TIMSS-R, is expanding on the first effort by including science classrooms, more countries, and a second camera in each classroom. The video components of TIMSS provide objective observational measures of classroom instruction.

Videotaping will also be used in the Instructional Processes Research Program, the purpose of which is to test new ways of measuring what goes on in the classroom. Video will be used as a validation tool to help us understand the strengths and weaknesses of several measurement strategies.

Surveys

NCES is also supporting the improvement of information on instructional practices through more traditional survey techniques. For example, the Early Childhood Longitudinal Survey (ECLS) will collect information from teachers on their instructional practices through a teacher questionnaire. Research has shown that, while not as rich as direct observation or videotaping, teacher reports of classroom practice are generally accurate. These reports from teachers, in combination with

comprehensive student data, will improve our understanding of how classroom instruction varies by teacher and how it relates to children's success in school. We expect to capitalize on the longitudinal nature of the ECLS by studying whether and how the educational outcomes of individual students are related to basic instructional practices and classroom characteristics.

Three projects in the Instructional Processes Research Program will include the use of traditional survey techniques to collect data on teacher practices. One project will collect extremely detailed information on a limited set of aspects of classroom instruction. The goal is to trade breadth for depth and to probe more deeply into previous findings in order to identify important variations that have so far remained hidden. A second project will attempt to measure the extent to which instructional practice reflects efforts by teachers to work in a standards-based system, that is, to prepare students to meet demanding curricular standards. A third study builds on prior efforts to define and measure students' opportunities to learn. For this study, two new measures will be developed to improve our understanding of the cognitive aspects of the learning process and modes of presentation used by teachers.

Finally, the 1999–2000 Schools and Staffing Survey (SASS) will, for the first time, ask teachers a battery of questions that are designed to measure teaching practices in the classroom. The questions are very specific and ask, for example, about the number of minutes spent by the class in activities such as solving math story problems. The items measure not only the method used by the teacher but also the curriculum covered.

Daily Instructional Logs

In a fourth Instructional Processes project, NCES plans to use daily instructional logs to gather information from teachers on classroom instruction. This activity will be designed to capture information on highly specific instructional activities undertaken by teachers as they instruct students on particular types of academic content. As with the other projects, these results will be compared with video studies to cross-validate the research methodologies used.

NCES is committed to finding effective ways of measuring classroom processes. The examples of our ongoing work given above indicate the level to which NCES recognizes the difficulty of measuring the complex processes of teaching and learning, and our willingness to explore nontraditional research methods in order to accomplish our goals. We appreciate the importance of this endeavor for understanding our children's educational success and will continue to strive to improve this aspect of NCES data collection activities.

FEATURED TOPIC: INSTRUCTIONAL PRACTICES

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What Happens in Classrooms? Instructional Practices in Elementary and Secondary Schools: 1994–95

Robin R. Henke, Xianglei Chen, and Gideon Goldman

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the 1994–95 Teacher Follow-up Survey (TFS:94–95), which sampled respondents to the 1993–94 Schools and Staffing Survey (SASS:93–94).

As education goals have been expanded and articulated in recent years, policymakers, educators, researchers, and the public have become more interested in how elementary and secondary school teachers teach their students. As part of a larger standards-setting movement intended to improve learning, elementary and secondary school teachers, college and university faculty, other educators, and business leaders have developed voluntary national curriculum standards in many subject areas. In addition, the National Board for Professional Teaching Standards (NBPTS) has developed standards for teaching various subjects at different grade levels. Together, these sets of standards provide both examples of reform-oriented teaching practice and a framework within which to examine teachers' practice at this stage of instruction reform.

This report presents estimates of the proportion of teachers who used a wide range of teaching practices, including both those frequently recommended in curriculum and teaching standards and those that have traditionally been part of teachers' practice. The report presents analyses of data collected in the 1994–95 Teacher Follow-up Survey (TFS:94–95), which administered for the first time a series of items on their instructional practices to a national sample of teachers in kindergarten through grade 12 and in all subject areas.

The report examines teachers' practices in four areas of instruction: the roles that teachers and students play in learning activities, the materials and technology that teachers and students use in the classroom, the kinds of learning tasks that students do both in the classroom and at home, and the methods that teachers use to assess and evaluate student learning. The report also discusses whether teachers' choices of instructional strategies vary with characteristics of teachers and their students.

Teacher and Student Roles in Instruction

Researchers and policymakers have become increasingly interested in teachers' grouping practices because of both the increasing popularity of cooperative learning techniques in the United States and international research on instructional strategies. In the United States, cooperative learning—which involves dividing a class of students into small groups in which students help each other learn material or collaborate to complete a project—has been advocated by a number of researchers as an effective strategy for improving both student motivation and learning (Cohen 1994; Johnson and Johnson 1994; Slavin 1996). Moreover, cooperative learning is an instructional strategy in which many teachers are being trained: in 1993–94, 50 percent of teachers reported that they had attended a professional development session on cooperative learning since the end of the previous school year (Henke et al. 1997).

The TFS:94–95 data indicate that teachers and students work together in a wide range of grouping patterns. Nearly all teachers reported that during the semester preceding the survey they had provided students in their designated class with whole group (98 percent) and individualized instruction (96 percent) at least once a week, and most (86 percent) reported using small group instruction on a weekly basis as well (table A).[1] Compared with teachers in higher grades, teachers in lower grades, who spend more time per week with the same group of students, were more likely to use small group instruction and to ask students to discuss as a class the work they had done in small groups. In addition, social studies teachers were less likely than teachers in the other core academic subjects—English, mathematics, and science—to use alternatives to whole class instruction.

In addition, many recommendations for instruction reform emphasize that interaction among students and between teachers and students facilitates students' understanding of concepts. In the TFS:94–95, teachers were asked how frequently they used instructional strategies that can be broadly classified into three categories of interaction patterns: teacher talk, teacher-student talk, and student-student talk. All three of these interaction patterns quite

Table A.— Percentage of teachers who used various grouping patterns at least once a week during the last semester, by class grade levels and subject areas: 1994–95

	Teacher activities			Student activities				
	Provided whole group instruction	Worked with small groups	Worked with individual students	Worked individually on projects	Conferred with other students	Group project, individual grade	Group project, group grade	Whole class discussed group work
Total	97.8	86.2	96.3	46.2	66.0	32.9	18.1	31.2
Class grade level								
K–3 (primary)	99.3	95.7	98.7	54.5	67.7	25.9	13.0	40.0
4–6 (intermediate)	98.7	87.6	97.5	54.7	69.8	44.2	25.3	41.7
7–8 (middle and junior high)	98.9	72.9	92.1	32.6	62.1	28.1	15.9	19.9
9–12 (high school)	98.1	75.5	93.7	38.8	66.4	33.6	17.7	23.4
Mixed	96.2	84.6	95.5	48.9	61.2	34.4	21.8	28.7
Special education	95.3	94.6	98.3	44.7	65.0	33.6	18.4	29.5
Class subject area								
General elementary	99.2	95.0	99.4	58.4	70.9	33.0	19.9	45.0
English or language arts	97.1	74.3	97.1	39.2	59.9	26.4	12.5	22.5
Mathematics	99.8	87.9	98.9	27.6	74.4	28.3	13.1	24.3
Science	100.0	85.0	94.1	33.5	67.2	37.8	18.7	27.1
Social studies	99.5	61.3	85.9	30.6	52.3	29.1	12.1	23.4
Special education	95.3	94.6	98.3	44.7	65.0	33.6	18.4	29.5
Bilingual or ESL	100.0	77.7	99.8	56.4	61.1	42.6	16.1	28.6
Vocational education	93.8	75.7	96.5	68.6	72.7	38.6	28.1	19.2
Other	97.5	77.2	90.3	37.8	59.9	34.8	18.6	21.5

NOTE: Teachers responded to the survey items on instructional practices in terms of a "designated class" of students for whom they had primary responsibility during the previous semester or grading period. For teachers who were responsible for a single group of students all day, that group was the designated class. For teachers who were responsible for multiple classes or groups of students each day, their first instructional class or group of the day was the designated class.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Teacher Follow-up Survey: 1994–95. (Originally published as table 2 on p. 13 of the complete report from which this article is excerpted.)

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[1] Teachers responded to the items on their instructional strategies in reference to one of their classes, referred to in the survey and this report as the "designated class."

commonly occurred in teachers' designated classes on a weekly basis. Most teachers reported that they lectured students (63 percent) and had students listen to and observe their presentations (76 percent) at least once a week, although teachers were more likely to report that they used teacher-student discussion strategies than lectures or presentations.

Materials Used in Instruction

In addition to the roles they and their students play in instruction, teachers must decide what materials they and their students will use as they teach and learn, within the constraints imposed by their districts and schools. Print materials have been mainstays of U.S. elementary and secondary education since the first common and charity schools of the 19th century (Kaestle 1983), and materials such as textbooks, supplementary reading materials, and workbooks and worksheets are commonly used today. Many reformers urge teachers to make less use of routine exercises commonly provided in textbooks and workbooks or worksheets, and instead to provide students with more original source materials (National Council for the Social Studies [NCSS] 1994; National Research Council [NRC] 1996). Moreover, print materials are not the only tools available to teachers today. In the past decade, instruction reformers have promoted the use of concrete materials (i.e., manipulatives, models, and other tools or objects) for mathematics and science lessons among older children as well as elementary grade children (National Council of Teachers of Mathematics [NCTM] 1989, 1991; NRC 1996). As computers, video, and other electronic technologies become both more common in society at large and less expensive, policymakers as well as education reformers are encouraging schools and teachers to make video, the Internet, and CD-ROMs part of everyday instruction (NCTM 1989; NRC 1996).

Although textbooks and workbooks or worksheets emphasizing routine practice were common, they were not used universally, and teachers assigned work with supplementary materials at least as often. Many teachers reported that their students used textbooks (74 percent) and supplementary printed materials (78 percent) in class at least once a week. About two-thirds of teachers had students do worksheets or workbook exercises emphasizing routine practice in class and at home weekly (68 and 65 percent, respectively). Overall, teachers were less likely to have students read supplementary materials than textbooks in their homework assignments, and this was particularly true of mathematics teachers.

Teachers' use of various print materials in class or homework assignments varies with their students' grade level. Compared with teachers in higher grades, teachers in lower grades were more likely to have students read supplementary materials in class and as homework and work on routine exercises in class. The proportion of teachers who had students read supplementary materials in class decreased from 91 percent of primary teachers to 66 percent of high school teachers, and the proportion who had students read supplementary materials as homework decreased from 57 percent among primary teachers to 43 percent among high school level teachers. In addition, intermediate teachers were more likely than teachers in the primary or middle and junior high grades to have students read textbooks in class (87 percent compared with 67 and 75 percent, respectively), perhaps because intermediate students have higher skills than primary students and spend more time with their teachers in class than middle and junior high school students, on average.[2]

Teachers commonly used concrete materials in their instruction, and less frequently used electronic media. Whereas 73 percent of teachers reported using manipulatives and models to demonstrate concepts, and 88 percent reported using the board or overhead to do so, 55 percent reported using a computer, video, or other electronic technology. Although primary teachers were more likely than teachers in other grade levels to have students use manipulatives at least once a week, 63 percent of high school teachers reported doing so. Mathematics, science, and social studies standards recommend that students use hands-on materials. However, science teachers were more likely to have students do so on a weekly basis: 79 percent of science teachers had students use hands-on materials weekly, compared with 62 percent of mathematics teachers and 43 percent of social studies teachers.

Classroom and Homework Activities

Reflecting the expansion of education goals to include higher order thinking as well as mastery of basic skills, curriculum standards in all four core academic subject areas emphasize that students' learning activities should include complex tasks that require higher order thinking.[3] University faculty, government agencies, academic and teacher professional organizations, and business leaders have called for teachers to provide more opportunities for students to become proficient at higher order thinking. Such learning activities include solving complex problems that require students to analyze, organize, and synthesize information and to communicate effectively, both orally and in writing (Marshall and Tucker 1992; Murnane and Levy 1996; NCTM 1989; The Secretary's Commission on Achieving Necessary Skills 1991). Moreover, curriculum standards in several subject areas recommend that teachers include authentic or real-world problems in the activities they ask students to do (NCSS 1994; National Council of Teachers of English/International Reading Association 1996; NCTM 1989).

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[2] Primary teachers teach in grades K–3, intermediate teachers in grades 4–6, middle and junior high teachers in grades 7–8, and senior high teachers in grades 9–12.

[3] Core academic subject areas include English, mathematics, science, and social studies.

The TFS:94–95 data indicate that nearly two-thirds of teachers asked students at least once a week to explain how what they had learned in class related to the real world, and about 60 percent had students work on problems that had several answers or methods of solution. Teachers were less likely, however, to have students engage in similar activities in their homework assignments. For example, 13 percent of teachers reported that homework assignments included problems with no obvious method of solution at least once a week. Teachers were more likely to assign routine exercises as homework: 65 percent did.

Older children's greater knowledge and skills might lead their teachers to use higher order thinking tasks more often than teachers of younger children. This expectation, however, was not supported by the TFS:94–95 data. Compared with higher grade teachers, teachers in the lower grades were more likely to ask students to explain how what they learned in class was linked to the real world. Primary teachers were more likely than intermediate teachers to ask students to put events or things in order and explain why they were organized that way (56 percent, compared with 39 percent). Intermediate teachers were more likely than senior high teachers to have students work on problems that required several methods of solution (68 percent, compared with 54 percent). They were also more likely than middle and junior high teachers to have students work on a project, gather data, or do an experiment at home (35 percent, compared with 18 percent).

Assessment of Student Learning

Researchers and education reformers have paid increasing attention not only to how teachers teach their students, but also to how teachers assess and evaluate students' learning (NCTM 1995; Stiggins and Conklin 1992). As the goals for elementary and secondary education have expanded to include higher order thinking skills, and as the school-age population becomes more culturally and linguistically diverse, some argue that assessment tools must expand beyond multiple-choice or short-answer tests in order to measure students' progress accurately (Herman, Aschbacher, and Winters 1992; Wiggins 1993). Although they are not without controversy (Shavelson, Baxter, and Gao 1993; Koretz et al. 1994), portfolios have been promoted as an assessment strategy that allows teachers to evaluate higher order, complex skills and also to provide opportunities for student goal setting and self-evaluation of progress (Arter and Spandel 1992; Darling-Hammond 1994).

Overall, 57 percent of teachers reported using portfolios during the semester preceding the survey. Teachers' use of portfolios was strongly associated with the grade level of their students. Nearly three-quarters of all primary teachers and 60 percent of intermediate teachers used portfolios to assess skills in at least one content area. In contrast, 41 percent of high school teachers reported using portfolios in at least one content area.

Teachers who use portfolios also use a wide variety of assessment tools, as shown by the kinds of student work they included in their portfolios. Teachers commonly included students' tests and assessments (62 percent) and worksheets (57 percent), and less commonly included homework assignments (35 percent) in portfolios (table B). These data indicate that many teachers are combining portfolios with traditional assessment strategies.

Perhaps the most common use of all the assessment information teachers collect is in determining end-of-semester or end-of-year letter grades or formal progress reports. Teachers can consider many factors when they determine student grades (Stiggins and Conklin 1992). While some may rely only on the absolute level of student achievement, others may consider additional factors, such as level of effort and degree of growth or improvement shown by their students (Brookhart 1993). Most, however, probably use a mixture of these factors, assigning a higher level of importance to some than to others (Brookhart 1993; Stiggins and Conklin 1992).

In the TFS:94–95, teachers were asked to indicate the importance of various aspects of student performance in assigning grades, including absolute achievement, level of effort, individual improvement, achievement relative to the

Table B.—Percentage of teachers who included various types of student work in student portfolios, by class grade level and subject area: 1994–95

	Work-sheets	Open-ended problems	Exploratory investi-gations	Long-term projects	Inter-disciplinary problems	Journal entries	Homework	Self-reflective writing	Narrative writing	Tests and assessments
Total	56.6	40.9	29.9	44.5	22.9	47.4	34.8	51.9	51.3	62.3
Class grade level										
K–3 (primary)	55.7	42.2	25.3	29.5	19.3	58.1	25.2	57.4	56.2	63.5
4–6 (intermediate)	56.3	40.8	30.6	52.7	24.2	48.0	35.0	55.7	60.5	66.0
7–8 (middle and junior high)	56.3	42.6	35.1	58.5	31.1	43.0	38.5	61.5	56.2	62.6
9–12 (high school)	50.7	40.7	33.3	55.3	23.3	32.3	44.9	40.4	40.1	59.0
Mixed	47.8	41.5	30.2	52.2	17.7	47.7	28.6	39.6	39.3	49.4
Special education	65.9	38.4	30.5	41.3	24.9	46.3	40.1	51.3	49.4	65.2
Class subject area										
General elementary	54.2	43.9	29.6	38.5	22.0	56.2	28.2	58.7	60.0	61.5
English or language arts	40.7	41.7	23.5	57.9	18.9	59.0	30.5	76.9	82.6	55.4
Mathematics	65.8	40.9	31.7	39.8	26.9	28.5	54.8	20.3	14.1	80.2
Science	61.5	53.1	58.6	55.8	32.5	30.7	[illegible]	28.4	24.6	68.2
Social studies	67.9	39.0	39.2	61.3	21.1	31.6	55.7	49.1	36.5	76.1
Special education	65.9	38.4	30.5	41.3	24.9	46.3	40.1	51.3	49.4	65.2
Bilingual or ESL	46.9	31.6	26.5	47.7	—	66.9	28.1	41.4	40.1	45.2
Vocational education	64.5	30.5	19.0	64.3	32.9	11.0	45.9	6.2	12.2	60.6
Other	52.6	32.3	23.6	45.2	19.9	31.3	29.5	37.8	31.4	51.8

—Too few cases for a reliable estimate.

NOTE: Teachers responded to the survey items on instructional practices in terms of a "designated class" of students for whom they had primary responsibility during the previous semester or grading period. For teachers who were responsible for a single group of students all day, that group was the designated class. For teachers who were responsible for multiple classes or groups of students each day, their first instructional class or group of the day was the designated class.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Teacher Follow-up Survey: 1994–95. (Originally published as table 9 on p. 31 of the complete report from which this article is excerpted.)

rest of the class, and portfolio items. Almost all teachers (97 percent) reported that measures of student effort were either very important or extremely important in determining grades. Eighty-four percent assigned the same level of importance to students' improvement over time, and 76 percent said that absolute achievement was very important. About one-half (49 percent) of teachers said that portfolio items were very important, and one-quarter said that achievement relative to the rest of the class was very important.

Class, School, and Teacher Characteristics Associated With Teachers' Instructional Practices

Beyond grade level and subject area, parents, educators, and policymakers are interested in whether and how instruction varies among teachers with different qualifications and among students of different backgrounds for at least two reasons. First, as debate regarding how teachers should teach continues, parents, educators, and policymakers worry that some children are consistently more likely to receive lower quality instruction than others. Second, some researchers claim that certain instructional strategies are particularly beneficial for children from low-income backgrounds or those with limited English proficiency (LEP) (Knapp 1995). To the degree that low-income children or children of cultural and linguistic minority backgrounds are better served by some instructional practices than others, therefore, systematic variation in instructional strategies may indicate appropriate, rather than lower quality, instruction.

Overall, the TFS:94–95 data indicate that public school teachers (who constitute 88 percent of all teachers) were generally more likely than private school teachers (12 percent of all teachers) to use recently recommended teaching practices in their classrooms.

Teachers' perceptions of student ability were associated in interesting ways with the instructional strategies they used. In the classroom, teachers who taught higher ability students tended to use recommended teaching strategies less often than did teachers who taught lower ability students. With homework assignments, however, teachers of higher ability classes were often more likely than teachers of lower ability classes to use recommended practices.

As the proportion of low-income students in their schools increased, teachers became more likely to use portfolio assessment of student work during the semester and to use the following recommended practices on a weekly basis: facilitating discussions, using manipulatives or models to demonstrate concepts, and having students use hands-on materials. However, teachers in schools with higher proportions of low-income students were also more likely to have students do traditional routine exercises, both in class and as homework.

In general, teachers of language minority children used recommended practices more often, and other practices less often, than did other teachers. For example, as LEP enrollment increased, so did the proportion of teachers who worked with small groups, had the whole class discuss the work that students had done in small groups, and had students interact primarily with other students in the class. Higher LEP enrollment was also associated with greater teacher use of higher level tasks as well as portfolio assessment of student work overall and, specifically, in English, mathematics, science, and other fields (but not social studies).

More experienced teachers were less likely than less experienced teachers to use some recommended practices and more likely to use some traditional practices. For example, 35 percent of teachers with 1 to 4 years of experience had the whole class discuss work that students had done in small groups, compared with 32 percent of teachers with 5 to 20 years of experience and 28 percent of teachers with more than 20 years of experience. Conversely, teachers with more years of experience were more likely than their less experienced counterparts to report that they had students read textbooks at home, a traditional practice.

Teachers with more advanced degrees were more likely than others to use a number of recommended practices, such as having students work on group projects for individual grades, engage in discussion primarily with other students in class, read supplementary materials in class and as homework, use calculators in class, work on problems with several answers or methods of solution in class, and apply concepts to unfamiliar situations in homework assignments. They were also more likely to use portfolios to assess student work.

In general, teachers who had participated in professional development about a year before completing the TFS:94–95 were more likely than those who had not to use recommended teaching practices. For example, teachers who participated in professional development on cooperative learning were more likely to use small group instruction in general and, specifically, to have students confer with other students, work on a group project for individual grades, and discuss with the whole class work they had done in small groups. Similar relationships were observed between professional development on education technology and the use of technology in the classroom, and between professional development on assessment and the use of portfolios to assess student work.

Conclusion

The TFS:94–95 offers a unique perspective on instruction in elementary and secondary schools in that it provides the first nationally representative data on instruction across subject areas. Consistent with previous research, these data indicate that students' grade level and the subject area of classes, as well as other characteristics of students, schools, and teachers themselves, are related to the instructional strategies that teachers choose. Future research will be able to determine whether teaching has changed in the 1990s, as states and localities adopt curriculum standards, as teachers continue to participate in professional development programs, as technology becomes more available, and as the size and demographics of the school-aged population change.

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Data source: The 1994–95 Teacher Follow-up Survey (TFS:94–95), which sampled respondents to the 1993–94 Schools and Staffing Survey (SASS:93–94).

For technical information, see the complete report:

Henke, R.R., Chen, X., and Goldman, G. (1999). *What Happens in Classrooms? Instructional Practices in Elementary and Secondary Schools: 1994–95* (NCES 1999–348).

For additional details about TFS:94–95 methodology, see

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Invited Commentary: Educational Reform and Instructional Change

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This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

The reform of education has been a major focus of policymakers at the local, state, and national levels since the publication in 1983 of *A Nation at Risk* (National Commission on Excellence in Education). Following the lead of the National Council of Teachers of Mathematics (NCTM 1989), nearly a dozen national subject-matter associations have issued new voluntary national curriculum standards that focus on conceptual understanding rather than basic skills. States have increased coursework requirements for high school graduation, developed content standards for K–12 education that generally reflect national standards, sought greater rigor in textbooks and student outcomes, and aligned statewide assessment and accountability programs with the more ambitious curriculum standards. The federal government has sought to ensure that students with special needs—such as low-achieving students, limited-English-proficient (LEP) students, and students with disabilities—are included in these reform efforts through changes in Title I of the Elementary and Secondary Education Act and the Individuals with Disabilities Education Act.

The new curriculum standards require teachers to make tremendous changes in what and how they teach and in their roles in classrooms and schools. The NCTM standards, for example, envision classrooms as places where students regularly explore interesting problems using important mathematical concepts, rather than memorizing isolated mathematical facts and computational procedures. These "active" classrooms should include the use of small group work, work with concrete materials, and problem solving in the context of projects. Students are encouraged to communicate mathematics ideas orally and in writing through questioning procedures and results, discussing and evaluating alternative approaches, and providing written explanations of their reasoning. Teachers are seen as facilitators of goals, rather than the exclusive source of mathematical knowledge (Lindquist, Dossey, and Mullis n.d.).

The push to include *all* students in standards-based reforms raises questions about how these kinds of learning opportunities are distributed across different kinds of students, classrooms, and schools. As decisions about promotion, high school graduation, and entry into either the job market or postsecondary education become tied to more rigorous tests, students must be given an equal opportunity to learn the new knowledge and skills that are being assessed.

The featured report, *What Happens in Classrooms? Instructional Practices in Elementary and Secondary Schools: 1994–95*, sheds light on the extent to which teachers use instructional practices recommended in the voluntary national curriculum standards and whether teachers' practices differ depending on the backgrounds of their students or their own experience and training. The authors examine four dimensions of instruction addressed by the national standards: the roles that teachers and students play in learning activities, the materials and technology used in the classroom, the kinds of learning tasks that students are asked to do both in the classroom and at home, and how teachers assess and evaluate student learning.

The data, from a nationally representative sample of elementary and secondary teachers in all subject areas, were collected in the 1994–95 Teacher Follow-up Survey (TFS:94–95).[1] Because the survey items were designed to capture practices across subject areas and grade levels, the information is considerably less detailed than that provided in other National Center for Education Statistics (NCES) and National Science Foundation surveys devoted to specific subject areas. But *What Happens in Classrooms?* provides a unique opportunity to compare and contrast some aspects of teaching across all grade levels and subject areas, and across different kinds of teachers and schools.

Four broad findings about instructional practices and access to learning opportunities emerge from the analyses presented in this report. First, teachers at all grade levels and in different subject areas used a variety of instructional practices in their classes, combining traditional practices (such as giving lectures and having students read textbooks and do exercises that emphasize routine practice) with practices promoted in the reform documents (such as cooperative learning, the use of supplementary printed materials and manipulatives, and assigning tasks that involve higher order thinking).

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[1] The TFS is conducted 1 year after the administration of the Schools and Staffing Survey (SASS), a set of national surveys of public and private schools and the teachers and administrators who work in them.

This finding should not be surprising, as the new ideas about what students should know and be able to do, how students should be taught, and how they should be assessed challenge the conceptions of student learning and teaching that all actors in the education system—students, parents, educators, policymakers, and the public—hold dear. For example, while there is strong public support for the concept of higher academic standards, citizens want students to master the basics before moving on to "higher order" skills (Immerwahr and Johnson 1996). Even teachers who support the new directions of reform express the need to balance old and new ways of teaching reading, writing, and mathematics to ensure that their students learn spelling, grammar, mathematical computation, and number facts (Goertz, Floden, and O'Day 1995).

Second, elementary school teachers, particularly those who work in the primary grades (K–3), appeared more likely to have adopted reform-oriented instructional practices than were teachers in higher level grades. Elementary school teachers generally reported greater use of small groups, strategies involving student talk, supplementary print materials, and manipulatives and other hands-on materials. These teachers were also more likely to report that they had students work in class on tasks that involved higher order thinking or had some of the characteristics of authentic problems. The authors of the report hypothesize that these differences may result from the amount of time that teachers spent with their designated classes each week. Accomplishing group work or having students work individually on longer term assignments might be difficult within the 45- to 50-minute class periods typically available to secondary teachers. Indeed, some junior and senior high schools have instituted block scheduling to address these constraints.

Two other explanations for the differential use of instructional practices are possible, however. First, because much of the early standards-based curriculum development, especially in mathematics and science, focused on the elementary grades, commercial publishers began to make new instructional materials available at the elementary school level. In contrast, Porter and Associates (1994) found that instructional materials were not available to support mathematics and science reforms at the high school level in the early 1990s. Second, much of the professional development sponsored and supported by subject-matter associations, school districts, and states has targeted elementary school teachers. For example, most states that received grants from the National Science Foundation's Statewide Systemic Initiatives (SSI) Program targeted the majority of their funds to the elementary and middle school grades (Shields, Corcoran, and Zucker 1994).

A third finding from *What Happens in Classrooms?* supports this hypothesized connection between professional development and changes in instructional practice in elementary schools. Elementary school teachers were somewhat more likely to have participated in professional development on instructional methods, student assessment, and cooperative learning than other teachers (Choy and Chen 1998). And teachers who participated in professional development on new instructional practices were more likely than those who had not to use the recommended strategies in group work, teacher-student interactions, and assessments.

Finally, the data from this study show that low-achieving students and students who attend high-poverty schools and schools with large concentrations of LEP students have similar or greater access to many of the instructional practices endorsed by reformers.[2] For example, teachers in higher poverty schools or schools with more LEP students were more likely to facilitate a discussion, use manipulatives or models to demonstrate a concept, and use portfolios to assess student progress. But teachers were also more likely to have low-achieving students do routine exercises in class while giving students in higher ability classes more access to problems that require higher order thinking skills.

In summary, *What Happens in Classrooms?* paints a picture of teachers' instructional practices in the early days of standards-based reform. Teachers incorporated some recommended practices into their classrooms, but did not decrease their conventional practices. Pedagogical reforms appear to have penetrated more deeply into elementary than secondary classrooms, perhaps due to greater exposure to the reforms or perhaps because elementary teachers are more willing to try new instructional approaches. Professional development had a positive impact on the practices it targeted. Finally, many reform practices had found their way into classrooms serving poor, low-achieving, and LEP students.

The data from the TFS:94–95 provide an important baseline for tracking changes in teacher practices as states adopt and schools and districts implement curriculum standards in different subject areas. But these kinds of survey questions, by their design, can tell only part of the story of classroom change. Research tells us that teachers can change some dimensions of their teaching, such as materials and grouping arrangements, more readily than other dimensions, such as the content of academic tasks (e.g., Cohen and Ball 1990; *Educational Evaluation and Policy Analysis* 1990; Spillane and Zeuli 1999). And we are learning that student performance is more likely to improve when educational improvement is focused on having teachers learn and teach academic content (e.g., Cohen and Hill 1998).

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[2] High-poverty schools are defined as those where 40 percent or more of the students receive free or reduced-price lunch. Schools with large concentrations of LEP students are those where the LEP enrollment is 10 percent or more.

Thus, policymakers and educators need data on the content, as well as the process, of instruction in order to document the extent and depth of reform in the nation's classrooms. The National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Study (TIMSS), new longitudinal surveys launched by NCES, and the 1999–2000 administration of the Schools and Staffing Survey (SASS) can provide more comprehensive information on teacher practice. These multiple data sources should expand our understanding of educational change.

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Invited Commentary: Moving Toward Better Instructional Practice Data

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This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

The Need for Teaching Practice Data

What Happens in Classrooms? Instructional Practices in Elementary and Secondary Schools: 1994–95 is a timely response to policymakers' increasing interest in improving education by reforming teaching practices or strategies (Blank and Pechman 1995). Measuring teaching practices using survey data, however, is still in its "infancy" (Brewer and Stasz 1996). To date, there have been very few studies that have used teacher surveys to describe the instructional strategies used throughout the country and, of these, none provides as detailed information as does *What Happens in Classrooms?* This is due to the fact that, historically, education reforms have tinkered at the edges of the educational process (Marshall, Fuhrman, and O'Day 1994, 12). Even the extensive reform efforts of the 1970s and 1980s remained aloof from teaching practices. During those decades, policymakers tried to improve schooling by adjusting resource allocations (e.g., striving for racial balance and financial equity) and by setting outcome goals (e.g., setting minimum course requirements and implementing minimum competency tests). Arguably, the perceived inadequacies of these policies have led to the country's current enthusiasm for educational standards aimed at influencing teaching practices.

To monitor the impact of these unprecedented reform efforts, the country needs accurate and nationally representative teaching practice data. The push for the routine collection of nationally representative data of this type only began in the late 1980s (e.g., Murnane and Raizen 1988; Office of Educational Research and Improvement 1988; Porter 1991; Shavelson et al. 1987). But a perceived inability of surveys to measure instructional practices, combined with policymakers' and researchers' historical emphasis on input-output studies, helps explain why much of what the country currently knows about the instructional process comes from in-depth studies in a handful of classrooms. A major limitation of in-depth studies is that their generalizability to other classrooms is unknown. Unfortunately, as reform initiatives increasingly focus on instructional processes, demand for accurate instructional practice data will remain high and the generalizability limitations of in-depth studies will become increasingly problematic. In turn, surveys will grow in appeal since they are a cost-effective way to include large numbers of classrooms in studies.

Alternative study models that straddle these two approaches for gathering teacher practice data are being tried. The Third International Mathematics and Science Study (TIMSS) supplemented teacher surveys with a "video survey" of 231 eighth-grade math classrooms in three countries. The video survey, like classroom observations, promises objectivity and specificity and has the added advantage of being available for wider and more systematic scrutiny. The TIMSS approach does not, however, surmount the primary hurdle associated with conducting classroom observations, namely, cost. Regularly conducting video surveys in a nationally representative sample of classrooms of different grade levels and subject areas would undoubtedly be cost prohibitive. Consequently, teacher self-reports of the sort collected in large national surveys such as the 1994–95 Teacher Follow-up Survey (TFS:94–95)—the data source for the findings reported in *What Happens in Classrooms?*—remain the most viable means for obtaining information about the status of teaching practices in the United States.

The TFS:94–95 findings reported in *What Happens in Classrooms?* are unique because they provide national estimates[1] of the proportion of teachers from all grade levels and major subject areas (English, mathematics, history, and science) who use various teaching strategies. Using data that are slightly dated but are unfortunately the most recent available, it examines the degree to which teaching practices vary by grade level and subject area; how instructional approaches vary with the characteristics of teachers, students, and schools; and the degree to which teachers use the reform instructional approaches advocated by the National Board for Professional Teaching Standards and several voluntary national curriculum standards.

The report presents some surprising findings. For example, one would expect that because older students have more knowledge and skills, the teachers of these students would tend to put more emphasis on higher order thinking skills than the teachers of younger students. But *What Happens in Classrooms?* finds that, in several instances, the opposite is the case. Also surprisingly, while several other studies

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[1] The TFS:94–95 is not representative of the entire 1994–95 teacher population because teachers were not eligible for the TFS sample unless they had been teaching in 1993–94. Therefore, it excludes 1994–95 first-year teachers and experienced teachers who were not teaching in 1993–94 but returned to the teaching force in 1994–95.

(Mayer 1998; Metz 1978; Oakes 1985; Raudenbush, Rowan, and Cheong 1993) have found that teachers of high-achieving students are more likely to use reform teaching practices (those emphasizing application, reasoning, and conceptual understanding) than traditional practices (those emphasizing memorization of facts and the mastery of routine skills), *What Happens in Classrooms?* finds that, in many instances, the opposite is true.

While the country needs information of the sort gathered by the TFS:94–95 and presented in *What Happens in Classrooms?*, many educators and researchers are skeptical about the ability of surveys to truly capture what goes on in classrooms. And given that national data collection efforts that use teacher surveys to describe teaching practices are in their infancy, researchers and policymakers want to know how much faith they can have in this type of data.

How Accurate Are Surveys?

Studies that have investigated the reliability and validity of using surveys to gather information on teaching practices have produced both encouraging and discouraging findings. The reliability of a survey describes whether its use in repeated trials will yield the same results. Low reliability could be the result of teachers finding the questions difficult to interpret or inaccurately recalling what they do in their classrooms. But knowing that an instrument is reliable does not justify the assumption that it is valid. Validity describes the extent to which an instrument accurately measures the phenomena of interest. One of the chief concerns about teaching practice survey data is that they may not provide an accurate depiction of what goes on in classrooms, for several possible reasons: (1) the teaching process consists of complex interactions between students and teachers that a survey cannot accurately depict, (2) teachers provide biased responses to a survey because they feel that they should (for a variety of reasons) respond to the questions in an "acceptable" or "socially desirable" way, and (3) teachers unknowingly provide misleading responses to the survey questions. Research suggests that teachers sometimes truly believe they are embracing pedagogical reforms, but in practice their teaching comes nowhere near the vision of the reformers (Cohen 1990).

To date, efforts to evaluate the reliability of the TFS items on teaching practices have raised questions but not resolved them. The National Center for Education Statistics (NCES) contracted with the U.S. Census Bureau to examine the reliability of selected TFS:94–95 survey questions. Twenty-two of the teaching practice questions used in the analyses in *What Happens in Classrooms?* were included in this study, and the reliability of *all 22* was found to be "problematic" (Henke, Chen, and Goldman 1999). Though the analyses used in the report try to account for this, the authors note that the findings should be interpreted with caution. Using a much smaller sample, but similar survey questions, I conducted an exploratory study that also found the items to be unreliable (Mayer 1999). On the other hand, Smithson and Porter (1994) and Burstein et al. (1995) conducted studies that led them to conclude that these types of instructional practice questions can be quite reliable.[2]

In my study, I did find that when variables representing similar pedagogical philosophies were grouped together to give a portrait of the preferred pedagogical style of teachers, the reliability of that composite variable was quite high[3] (and was, in this case, significantly related to middle school algebra learning) (Mayer 1998). Combining items makes sense because a single item cannot "provide a coherent picture of instruction" (Burstein et al. 1995, 36). Other composites, such as academic aptitude test scores and the Consumer Price Index (CPI), provide a good analogy. Aptitude tests always consist of multiple questions that measure an underlying characteristic, such as mathematics ability. Likewise, the CPI, which tracks inflation, is created by monitoring the cost of a "basket" of goods that consumers might purchase in a given month. Tracking the cost of only one product, such as canned soup, would not provide an accurate or informative picture of inflation. And answering one algebra question would not provide an accurate measure of mathematics aptitude. In *What Happens in Classrooms?*, interesting summary variables were created, but unfortunately they were discussed only briefly, and the relationships between these variables and other variables were not presented in the report.

The validity of teaching practice items has also been investigated and resulted in similarly mixed conclusions. Burstein et al. (1995, 45) compare classroom artifacts (i.e., textbooks and assignments) with teacher survey responses concerning the characteristics of their exams and homework assignments. They conclude: "To the extent that we were able to validate the survey data on teachers' instructional strategies, we found that those data report accurately the instructional strategies used most often by teachers. . . ." In another study (Mayer 1999), a composite representing the amount of time spent using reform mathematics teaching practices based on survey data and a parallel composite based on classroom observations also produced a high correlation ($r = .85$). Despite this encouraging finding, the same classroom observations also revealed that the survey did not adequately capture the *quality* of the teachers' use of various practices.

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[2] I do not think their findings are as encouraging as they do. For a discussion of why, see Mayer (1999).

[3] This is not unexpected given that when multiple items measure the same underlying characteristic (e.g., a reform instructional approach) and are grouped together, the reliability of the construct will always be greater than the reliability of the individual items (Carmines and Zeller 1979).

NCES Is Developing Better Measures of Teaching Practice

Studies that have investigated the reliability and validity of using surveys to gather information on teaching practices suggest important ways in which this effort can be improved. The teaching practice items on the upcoming 1999–2000 Schools and Staffing Survey (SASS:1999–2000) will reflect some of these strategies. For example, on the TFS:94–95, teachers were asked to describe their teaching over the past semester, but research by Mullens and Gayler (1999) suggests that teachers cannot accurately recall the whole semester. Therefore, SASS:1999–2000 will ask teachers to refer to their last 2 weeks of typical instruction when describing their teaching practices.

On the TFS:94–95, teachers were also asked to report whether they used teaching practices "almost every day," "once or twice a week," "once or twice a month," "once or twice a semester," or "never." These response options are limited in at least two ways. First, Burstein et al. (1995) found that because "almost every day" and "once or twice a week" were such similar response options, teachers could not distinguish between them, thereby reducing their reliability. Second, because these response options only ask teachers to assess how *often* they use particular teaching approaches and not *how much* time they spend on each approach, the results can be uninformative and misleading. For example, *What Happens in Classrooms?* reports that at least 85 percent of teachers stated they used numerous practices at least once a week (e.g., working in small groups, providing whole group instruction, and having students answer open-ended questions), but this result inappropriately lumps together teachers who use a given approach for only a few minutes a week with those who use it for several hours. As a remedy to these problems, SASS:1999–2000 will ask teachers to estimate how often *and* for how many minutes they use each of the instructional techniques over a 2-week period.

In addition to the improvements that will likely result from the new SASS items, NCES is sponsoring a 4-year research and development effort through the Education Statistics Services Institute (ESSI) aimed explicitly at creating more accurate teaching practice indicators.

Conclusion

The TFS:94–95 findings reported in *What Happens in Classrooms?* provide important information about the instructional practices being used throughout the country, but they also offer an opportunity to further our understanding of how to use surveys to measure instructional practice. Carefully used, surveys offer the most cost-efficient means to measure instructional practice. To move instructional practice surveys into the next stage of development, NCES has been refining the teaching practice measures used on its surveys. The fruits of this labor should help policymakers and reformers as they attempt to assess the degree to which new policies aimed at influencing teaching practices are taking hold and having their desired effect.

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The NAEP 1998 Reading Report Card for the Nation and the States

Patricia L. Donahue, Kristin E. Voelkl, Jay R. Campbell, and John Mazzeo

This article was originally published as **The NAEP 1998 Reading Report Card: National and State Highlights.** *Some of the tables and sections from the* **Highlights** *have been omitted. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1998 Reading Assessment.*

America's children are its greatest resource. Educators, parents, and concerned citizens want to provide young people with the academic opportunities to compete and succeed in a challenging world. One resource that can help inform the public about the academic preparedness of America's youth is the National Assessment of Educational Progress (NAEP), often referred to as "the Nation's Report Card."

In 1998, the National Center for Education Statistics (NCES) administered the NAEP reading assessment to a national sample of students at grades 4, 8, and 12, and to state samples of students at grades 4 and 8. The results of this assessment present a broad view of how America's students are achieving in reading—one of the most important sets of skills that young people acquire and develop

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throughout their lives. Because the assessment administered in 1998 shared a common set of reading passages and comprehension questions with assessments given in 1992 and 1994, it is possible to use NAEP results to chart the progress American students have made in reading since 1992.

This article provides highlights from the 1998 NAEP reading assessment, describing its content, its major findings at the national and state levels, and students' experiences at school and at home that support achievement in reading. Student performance is reported as an average score based on the NAEP reading scale, which ranges from 0 to 500. The average scale score reflects the overall reading performance of a particular group of students. Student reading performance is also reported in terms of three achievement levels: *Basic*, *Proficient*, and *Advanced*. The achievement levels are performance standards, adopted by the National Assessment Governing Board (NAGB) as part of its statutory responsibilities. The levels are collective judgments of what students should know and be able to do for each grade tested. They are based on recommendations by broadly representative panels of classroom teachers, education specialists, and members of the general public.

As provided by law, the Commissioner of Education Statistics, upon review of a congressionally mandated evaluation of NAEP, has determined that the achievement levels are to be considered developmental and should be interpreted and used with caution. However, both the Commissioner and NAGB believe these performance standards are useful for understanding trends in student achievement. They have been widely used by national and state officials, including the National Education Goals Panel, as a common yardstick of academic performance.

The NAEP 1998 Reading Assessment

The NAEP reading framework developed by NAGB describes reading as an interactive process. To comprehend what is being read, the reader must interact with the written word and interpret ideas presented in the reading material based, in part, upon the reader's knowledge and purpose for reading. The NAEP reading assessment included three types of reading material that represent different purposes for reading: reading for literary experience, reading to gain information, and reading to perform a task.

The materials that were used in the NAEP reading assessment were taken from sources that are typically available to students, such as collections of stories, children's or youth magazines, or informational books. These materials were presented in their original formats in the test booklets so as to reproduce, as much as possible, an "authentic" reading experience. By giving students different types of reading materials, NAEP was able to provide a measure of reading performance that reflects students' typical reading experiences both in and out of school.

To measure students' comprehension of the reading materials included in the assessment, students responded to both multiple-choice and open-ended questions. At all three grades, at least half of the questions required students to provide their own written responses, so that they could explain and support their understanding.

NAEP Reading Assessment Results for the Nation

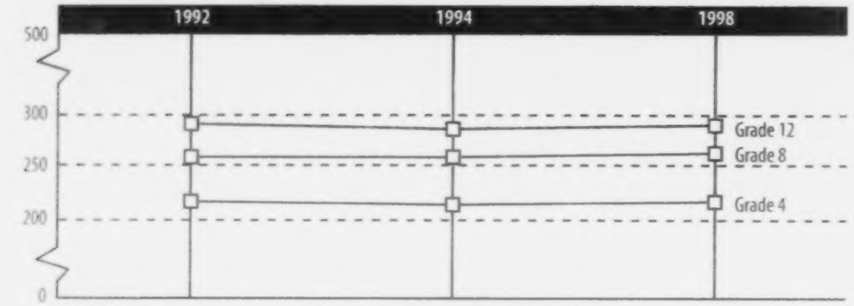
The results of the 1998 reading assessment are mixed. At grade 8, the 1998 average reading score was higher than the 1992 and 1994 scores (figure A). In contrast, although the scores increased between 1994 and 1998 for students in grades 4 and 12, these increases showed no net gains over the 1992 average scores for reading.

Achievement-level results for the nation's 4th-, 8th-, and 12th-grade students are presented in table A. In reading this table, it is necessary to keep in mind that the levels are cumulative. The percentage of students who are at or above *Basic* includes not only students at the *Basic* level of performance, but also those students who attained the *Proficient* and *Advanced* levels. Likewise, the percentage of students at or above *Proficient* includes those who attained the *Advanced* level.

In 1998, performance at or above the *Proficient* level—the achievement level identified as the standard all students should reach—was attained by 31 percent of students at grade 4, 33 percent of students at grade 8, and 40 percent of students at grade 12.

- At grade 4, there was no significant change in achievement-level performance across the three assessment years.
- At grade 8, the percentages of students at or above *Basic* and at or above *Proficient* were higher in 1998 than in 1994 and in 1992.

Figure A.—Average reading scores for the nation: 1992, 1994, and 1998



	1992	1994	1998
Grade 12	292	287	291†
Grade 8	260	260	264*†
Grade 4	217	214	217†

*Indicates that the 1998 score is significantly different from the 1992 score.

†Indicates that the 1998 score is significantly different from the 1994 score.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress, 1992, 1994, and 1998 Reading Assessments. (Previously published on p. 6 of *The NAEP 1998 Reading Report Card: National and State Highlights*.)

- At grade 12, the achievement-level results were somewhat mixed. Higher percentages of students attained each level of performance in 1998 than in 1994. In addition, the percentage of students at the *Advanced* level was higher in 1998 than in 1992. Although the percentage of students at or above *Basic* increased between 1994 and 1998, it was still lower than it had been in 1992.

Table A shows cumulative percentages of students "at or above" each achievement level. A large proportion of students at each grade did not reach the *Proficient* level of reading performance.

Reading performance of male and female students

In 1992, 1994, and 1998, the average reading scores for females were higher than those for males at all three grades. The results are generally positive, showing that most students are making gains in reading.

- At grade 4, the average score for male students went up between 1994 and 1998; however, there was no change in the average score for female students.
- At grade 8, the average scores for both male and female students in 1998 were higher than in 1994 and in 1992.
- At grade 12, the average score for female students went up between 1994 and 1998. The apparent gain between 1994 and 1998 for male 12th-graders was not significant, and their average score in 1998 remained lower than it was in 1992.

More females than males were at or above the *Proficient* level. In 1998, one-third or fewer of males in each grade reached or exceeded this level—28 percent at grade 4, 27 percent at grade 8, and 32 percent at grade 12. In comparison, one-third or more of females in each grade were at or above *Proficient*—33 percent at grade 4, 40 percent at grade 8, and 48 percent at grade 12.

For both males and females at grade 8, there were gains in the percentage of students at or above *Proficient*. In 1998, the percentage of male eighth-graders was higher than in 1994 and in 1992, and the percentage of female students was higher than in 1992. Among female 12th-graders, a higher percentage of students were at or above *Proficient* in 1998 than in 1994.

Table A.—Percentage of students at or above the reading achievement levels for the nation: 1992, 1994, and 1998

	Below basic	At or above basic	At or above proficient	Advanced
Grade 4				
1998	38	62	31	7
1994	40	60	30	7
1992	38	62	29	6
Grade 8				
1998	26[*†]	74[*†]	33[*†]	3
1994	30	70	30	3
1992	31	69	29	3
Grade 12				
1998	23[*†]	77[*†]	40[†]	6[*†]
1994	25	75	36	4
1992	20	80	40	4

[*] Indicates that the 1998 percentage is significantly different from the 1992 percentage.

[†] Indicates that the 1998 percentage is significantly different from the 1994 percentage.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress, 1992, 1994, and 1998 Reading Assessments. (Previously published on p. 6 of *The NAEP 1998 Reading Report Card: National and State Highlights*.)

Reading performance by racial/ethnic subgroups

In 1998, white and Asian fourth-grade students outscored their black, Hispanic, and American Indian peers. American Indian students also scored higher than black students at grade 4. Among eighth-graders, white and Asian students again scored higher than their black, Hispanic, and American Indian peers. At grade 12, white students had higher scores than black, Hispanic, and American Indian students. Asian students outscored their black and Hispanic peers, and Hispanic students had higher scores than black students.

- At grade 4, the average score for black students went up between 1994 and 1998.
- At grade 8, the average scores for both white and black students in 1998 were higher than in 1994 and 1992.
- At grade 12, the average scores for both white and Hispanic students went up between 1994 and 1998.

In 1998, the average scores for Asian/Pacific Islander and American Indian students had not changed significantly at any grade since 1992 or 1994.

Across the three grades in 1998, between 39 and 47 percent of white students were at or above the *Proficient* level. In comparison, 10 to 18 percent of black students and 13 to 26 percent of Hispanic students reached or exceeded this level of performance. The only significant increases seen in the percentages of students at or above the *Proficient* level in any racial/ethnic group were for white students at grades 8 and 12 between 1994 and 1998.

Reading performance by type of school

Results are reported in terms of average reading scores for students attending two types of schools: public and nonpublic. Included among nonpublic school students are those who attended Catholic schools and those who attended other nonpublic schools. For all three grades in 1998, students in nonpublic schools had higher reading scores than their peers in public schools. It should be noted that differences between the performance of students in public and nonpublic schools may be due to a variety of factors, such as student selection and parental involvement.

In 1998, scores for students in nonpublic schools were not significantly different from scores in 1994 and in 1992. The 1998 score for fourth-graders in public schools also was not significantly different from those in the previous two assessments. However, there were some gains for 8th- and 12th-graders in public schools.

- At grade 8, the average score for public school students in 1998 was higher than in 1994 and in 1992.
- At grade 12, the average score for public school students went up between 1994 and 1998.

At each grade, a higher percentage of nonpublic school students reached or exceeded the *Proficient* level of performance than did public school students. Across the three grades in 1998, between 46 and 54 percent of nonpublic school students were at or above *Proficient*. In comparison, 29 to 39 percent of public school students were at or above this level.

The only significant increase seen in the percentages of students at or above the *Proficient* level was for public school students at grade 8; the percentage in 1998 was higher than that in both 1994 and 1992.

School and Home Factors Related to Reading Achievement

Do students' reading habits in school and at home affect their reading proficiency? Is there a relationship between students' television viewing habits and their reading achievement? What kinds of teaching practices seem to enhance students' reading performance? NAEP collects information that can help researchers answer these questions.

This information may be especially useful. It may help educators discover, for example, that some of their own established classroom activities are also practiced by their colleagues across the nation. It also can suggest different approaches to help students become better readers, and provide a resource for parents to strengthen their children's at-home reading habits.

Daily reading habits

Research has found that children who read every day have the best chance of becoming competent readers. Daily practice at reading in school and for homework may not only increase fluency, but may also encourage both literacy habits and literary appreciation. Although the amount of reading students do each day may vary depending on a school's instructional goals and student needs, most schools do require their students to read on a daily basis.

Students in the NAEP 1998 reading assessment were asked about the number of pages they read daily in school and for homework. The data show that the more students read each day, the higher their scores were on the NAEP reading assessment. Eighth- and 12th-graders in 1998 were reading more pages each day in school and for homework than were 8th- and 12th-graders in 1994.

Reading and writing

Most educators today agree that integrating reading and writing benefits the development of literacy. Numerous studies have shown that reading development does not take place in isolation; children develop simultaneously as readers, listeners, speakers, and writers. The NAEP reading assessment recognized the importance of these interrelationships by asking students and teachers questions about the ways in which reading and writing are combined in their classrooms.

Students in the NAEP 1998 reading assessment were asked how frequently in school they were asked to write long answers to questions on tests or assignments that involved reading. The data show an increase since 1994 in the percentage of students at grades 4 and 8 who wrote long answers to questions at least once a week. The students who said they wrote long answers on a weekly or monthly basis had higher scores than those who said they did so twice a year or less.

Discussing studies at home

The lessons students learn in school are reinforced when they have opportunities to share them with caring family members. Research studies have documented the higher achievement of students whose families have taken an active role in their learning. Recognizing this, recent education reform efforts, such as Goals 2000, have sought to strengthen cooperation between parents and schools.

The NAEP 1998 reading assessment sought to gauge the impact of parental involvement on students' reading achievement by asking students how often they discuss their studies with someone at home. Students in all three grades who discussed studies at home at least weekly had higher reading scores than students who did so less frequently. At grades 8 and 12, students who did this almost every day had the highest reading scores. There were no significant changes over time in the frequency of this activity.

Television viewing

Television watching has been widely criticized for distracting children from their studies and discouraging recreational reading. Numerous research findings provide support for these concerns and underscore the negative relationship between TV viewing and literacy development.

The NAEP reading assessment has long recognized the importance of monitoring the effects of television watching on students' reading achievement. Students in the assessment were asked how many hours of television they watched each day. At all three grades, students who watched 3 hours or less of television daily had higher reading scores than students who watched 4 or more hours daily. The percentages of students watching 4 or more hours daily generally decreased between 1994 and 1998, suggesting that students are watching less television on a daily basis.

Reading Performance Within States

While the average scores of students across the nation provide parents and educators with a broad view of how well the nation's students are performing in reading, it is also informative to examine the reading performance of students within individual states. In 1998, the NAEP assessment was conducted not only at the national level, but also within states or other jurisdictions that volunteered to participate in the state-level assessments at grades 4 and 8.

Fourth-grade reading performance

Table B compares the average score of each of the 43 states or jurisdictions that participated in the 1998 state assessment at grade 4 with the national average score. Thirteen states or jurisdictions had average scores that were above the national average, 15 were at or around the national average, and 15 were below the national average.

Eighth-grade reading performance

Table C compares the average score of each of the 40 states or jurisdictions that participated in the 1998 state assessment at grade 8 with the national average score. Fifteen states or jurisdictions had average scores that were above the national average, 11 were at or around the national average, and 14 were below the national average.

State-level trends in reading scores

The 1998 NAEP reading assessment was the third in which states or jurisdictions could participate in a state-level assessment of reading at grade 4. Thus, it is possible to observe changes over time in students' reading performance by comparing the 1998 score to the 1994 and 1992 scores in each state or jurisdiction. Because 1998 was the first time a state-level assessment of reading was conducted at grade 8, it is not possible to observe changes across time in the reading performance for eighth-graders in each state.

Between 1992 and 1998, the reading scores for fourth-grade public school students went up in Colorado, Connecticut, Kentucky, Mississippi, North Carolina, and the Virgin Islands. However, in Utah, Wyoming, and the District of Columbia, the reading score in 1998 was lower than it was in 1992.

Table B.—1998 NAEP reading comparison of state versus national average reading scores for public schools: Grade 4

Above the national average	At or around the national average	Below the national average
Colorado	Kentucky	Alabama
Connecticut	Maryland	Arizona
DDESS	Michigan	Arkansas
DoDDS	Missouri	California[1]
Iowa[1]	New York[1]	Delaware
Kansas[1]	North Carolina	District of Columbia
Maine	Oregon	Florida
Massachusetts[1]	Rhode Island	Georgia
Minnesota[1]	Tennessee	Hawaii
Montana[1]	Texas	Louisiana
New Hampshire[1]	Utah	Mississippi
Oklahoma	Virginia	Nevada
Wisconsin[1]	Washington	New Mexico
	West Virginia	South Carolina
	Wyoming	Virgin Islands

[1] Indicates jurisdiction did not meet one or more of the guidelines for school participation.

NOTE: Differences between states and jurisdictions may be partially explained by other factors not included in these tables. DDESS: Department of Defense Domestic Dependent Elementary and Secondary Schools; DoDDS: Department of Defense Dependents Schools (Overseas).

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress, 1998 Reading Assessment. (Previously published on p. 12 of *The NAEP 1998 Reading Report Card: National and State Highlights*.)

Table C.—1998 NAEP reading comparison of state versus national average reading scores for public schools: Grade 8

Above the national average	At or around the national average	Below the national average
Connecticut	Arizona	Alabama
DDESS	Colorado	Arkansas
DoDDS	Kentucky	California[1]
Kansas[1]	Maryland[1]	Delaware
Maine	Missouri	District of Columbia
Massachusetts	North Carolina	Florida
Minnesota[1]	Rhode Island	Georgia
Montana[1]	Tennessee	Hawaii
New York[1]	Texas	Louisiana
Oklahoma	West Virginia	Mississippi
Oregon	Wyoming	Nevada
Utah		New Mexico
Virginia		South Carolina
Washington		Virgin Islands
Wisconsin[1]		

[1] Indicates jurisdiction did not meet one or more of the guidelines for school participation.

NOTE: Differences between states and jurisdictions may be partially explained by other factors not included in these tables. DDESS: Department of Defense Domestic Dependent Elementary and Secondary Schools; DoDDS: Department of Defense Dependents Schools (Overseas).

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress, 1998 Reading Assessment. (Previously published on p. 13 of *The NAEP 1998 Reading Report Card: National and State Highlights.*)

Between 1994 and 1998, the reading scores for fourth-grade public school students went up in Colorado, Connecticut, Delaware, Kentucky, Louisiana, Maryland, South Carolina, Virginia, Washington, and Department of Defense overseas schools. There were no significant declines in scores between 1994 and 1998 for any participating jurisdiction.

State-level trends in achievement-level performance

Between 1992 and 1998, the percentage of public school fourth-graders who reached or exceeded the *Proficient* level increased in Colorado, Connecticut, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, and the Virgin Islands. There were no significant decreases for any state or jurisdiction.

Between 1994 and 1998, the percentage of public school fourth-graders at or above *Proficient* increased in Colorado, Connecticut, Louisiana, and Department of Defense overseas schools. There were no significant decreases for any state or jurisdiction.

Data source: The National Assessment of Educational Progress (NAEP) 1998 Reading Assessment.

For technical information, see the complete report:

Donahue, P.L., Voelkl, K.E., Campbell, J.R., and Mazzeo, J. (1999). *The NAEP 1998 Reading Report Card for the Nation and the States* (NCES 1999–500).

For additional details about NAEP 1998 methodology, see

Allen, N.L., Donoghue, J.R., and Schoeps, T.L. (forthcoming). *The NAEP 1998 Technical Report.*

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NAEP 1996 Trends in Writing: Fluency and Writing Conventions

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This article was excerpted from the Introduction and Summary of the report of the same name. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1996 Long-Term Trend Assessment.

Introduction

The NAEP long-term trend writing assessment

The National Assessment of Educational Progress (NAEP) long-term trend writing assessment provides an important picture of students' progress over time because it compares performance on the same writing tasks, administered in identical fashion to comparable samples of students and yielding comparable scores. There have been six national assessments of writing conducted during the school years ending in 1984, 1988, 1990, 1992, 1994, and 1996. The 1996 assessment included the same set of 12 writing tasks that had been administered in the five previous assessments. Each of these trend assessments was administered to nationally representative samples of students in grades 4, 8, and 11.

Over the past three decades, many teacher educators and classroom teachers have been emphasizing the writing process. The writing process approach focuses on the iterative nature of writing, in which writers plan, write, and revise their ideas in several drafts before a final version is produced. It is during the revision or editing stages of this process that writers focus on correcting grammatical and mechanical errors. Grammatical and mechanical correctness is not viewed as an end in and of itself, but eliminating these errors is an important part of improving the final draft. This report focuses on what changes, if any, have occurred in student writing between 1984 and 1996, the period examined by the NAEP long-term trend writing assessment.

This report

Results of the 1996 long-term trend writing assessment are reported in two publications. This report describes two aspects of writing for which change has been measured since 1984: writing fluency, as determined by *holistic scoring*; and mastery of the conventions of written English (spelling, punctuation, grammar) as determined by *mechanics scoring*. This report is supplementary to *NAEP 1996 Trends in Academic Progress* (Campbell, Voelkl, and Donahue 1997), the main report for the NAEP long-term trend assessment. That document reports trends in writing scores since 1984 as determined by *primary trait scoring*. This report presents the results of the holistic scoring of a subgroup of 4 of the 12 writing tasks, and the mechanics scoring of 2 of these 4 tasks.

The NAEP long-term trend writing assessments discussed here and in *NAEP 1996 Trends in Academic Progress* should not be confused with the main NAEP writing assessments. The long-term trend writing assessment was begun in 1984, and has presented students with the same writing tasks in the five ensuing assessments. These writing tasks are completely different from the prompts in the main NAEP assessment.[1] The use of different writing prompts, as well as other procedural differences, precludes direct comparison of the results of the long-term trend assessment discussed here with those of the main assessment.

Multiple tasks and multiple measures of writing

In order to assess students' abilities to write in a variety of formats and genres, the NAEP long-term trend writing assessment asks them to respond to several different tasks in each of three types of writing:

- informative tasks ask students to write descriptions, reports, and analyses;
- persuasive tasks ask students to write convincing letters and arguments; and
- narrative tasks ask students to write stories.

The NAEP long-term trend instrument consists of 12 distinct writing tasks; however, each student who participated in the assessment responded to only a few (usually two) of the 12 tasks. These tasks are assessed using three types of measures:

- primary trait scoring, as described in *NAEP 1996 Trends in Academic Progress*, measures success in accomplishing the specific task (e.g., writing persuasively);
- holistic scoring, reported here, measures fluency in a subgroup of 4 of the 12 tasks; and

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[1] The NAEP long-term trend assessments have been administered in mathematics, science, reading, and writing to national samples of students. Eighth-graders are assessed in the fall, 4th-graders in the winter, and 11th-graders in the spring, and the test booklets remain the same over all assessments. In contrast, the main NAEP 1992 Writing Assessment was conducted in the first quarter of 1992 at grades 4, 8, and 12, and the main NAEP 1998 Writing Assessment (based on a new framework) was conducted at grades 4, 8, and 12 in the first quarter of 1998. The 1998 main writing assessment was also administered to students in participating states at grade 8.

- mechanics scoring, also reported here, measures conventions of written English using a subgroup of two of the four holistically scored tasks.

Primary trait scoring is based on established criteria that reflect the success of the student in accomplishing the specific writing task; for primary trait scoring, a unique scoring guide was used for each of the tasks. Student responses to all 12 writing tasks received primary trait scoring, as reported in the principal 1996 long-term trend report, *NAEP 1996 Trends in Academic Progress*.

However, there are other aspects of writing that it is also important to assess. For instance, general writing quality or fluency—the student's capacity to organize and develop a written piece, to use correct syntax, and to observe the conventions of standard written English—is important. These aspects of written communication, taken together, are what holistic evaluation of writing addresses.[2]

The long-term trend writing assessment consisted of three distinct parts: primary trait, holistic, and mechanics scoring criteria.

- First, all 12 of the long-term trend writing tasks were scored using primary trait scoring criteria. The results of this are reported in *NAEP 1996 Trends in Academic Progress*.[3]
- Next, a subgroup of four of these tasks was scored holistically—two tasks at each grade level (figure A). Different scoring guides were used for holistic scoring of narrative, informative, and persuasive tasks.
- Lastly, to gain information about students' mastery of the conventions of written English, a subgroup of two of the holistic tasks was scored for mechanics—one at each grade level (figure A). For mechanics scoring, the same criteria were used to evaluate all tasks.

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Measuring the fluency of writing

Holistic scoring is the most commonly used method for evaluating students' writing performance in the United States today. Holistic scoring for NAEP focuses on the writer's fluency in responding to a task relative to the performance of other students at that grade level (Cooper 1977). Fluency reflects a writer's facility with language both in terms of the development and organization of ideas and in the use of syntax, diction, and grammar. Holistic scoring methods were specifically designed to assess writing fluency. The underlying assumption of holistic scoring is that the whole piece of writing is greater than the sum of its parts. In holistic scoring, readers do not make separate judgments about specific aspects of a written response, but rather consider the overall effect, rating each paper on the basis of its general fluency.

In the NAEP long-term trend assessment, responses to four tasks are scored holistically, two tasks at each of the three grades (the same two tasks are administered at both 8th and 11th grades). The characteristics of general fluency are assessed on a six-point scale. In order to make comparisons of students' writing fluency across all 6 years of the assessment, all papers from the previous years were scored holistically, along with all of the 1996 papers. For each year, approximately 1,200 papers[4] from each grade are scored.

As is typical with all holistic scorings, raters are trained on a particular task immediately before scoring the papers written in response to that task. For each task, the papers from all years are randomly mixed and then assigned one of six scores. To detect changes in fluency from one assessment to another, the percentages of papers from each year within a given score category are compared. The comparisons reported here are for the first or base year and the current year, as in previous reports (e.g., Campbell et al. 1996).

Thus, while primary trait scoring is based on specific constant criteria and so permits year-to-year and grade-to-grade comparisons, holistic scoring allows within-grade comparisons of relative fluency over all years according to contemporaneous criteria.

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[2] It should be noted that holistic evaluation depends in part on aspects of writing measured in mechanics scores.

[3] Previous years of the *Trends* report (Campbell et al. 1996; Mullis et al. 1991; Mullis et al. 1994) also contain results from holistic and mechanics scoring of the tasks presented here. The 1994 *Trends* (Campbell et al. 1996) is also on the Web, as is the 1996 edition (Campbell, Voelkl, and Donahue 1997).

[4] For the first or base year of the assessment (1984), the number of papers was about half the quantity of that in ensuing years.

Figure A. — Task by type of writing and summary of writing tasks scored for fluency (H) and for mechanics (M)

Tasks by type of writing	Summary of writing tasks scored for fluency (H)[1] and for mechanics (M)[2]	Administered at Grade		
		4	8	11
Informative	**Food on the Frontier** required students to read a social studies passage about frontier life and then to explain why modern-day food differs from frontier food		H	H
Persuasive	**Spaceship** required students to form their own points of view about whether creatures from another planet should be allowed to return home or be detained for scientific study, and to support their points of view in ways that would convince others to agree with them	H, M		
Persuasive	**Recreation Opportunities** required students to take a stand on whether their own town should purchase an abandoned railroad track or a warehouse as a recreation center, to defend their choice, and to refute the alternative choice		H, M	H, M
Narrative	**Flashlight** required students to write a story about their imagined adventures with a flashlight that has special powers	H		

[1] Holistic scoring measures writing fluency.

[2] Mechanics scoring measures the writer's control of the conventions of written English.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress, 1996 Long-Term Trend Assessment. (Originally published as figure I.1 on p. 4 of the complete report from which this article is excerpted.)

Measuring the mechanics of writing

Another set of analyses, applied to papers written for two of the tasks, focused on the mechanics of students' writing. While error counts do not fully reflect a writer's fluency and competency, many educators, policymakers, and parents are interested in the kinds of surface errors students make as they write (Shaughnessy 1977). Students' mastery of the sentence-level and word-level conventions of English, as well as their use of correct spelling and punctuation, was examined. In order to examine changes in students' success in using the conventions of written English, one task at each grade was selected for a detailed analysis of writing mechanics, including spelling, word choice, punctuation, and syntactic errors.

Summary of Findings

Fluency in writing

Modest improvements in writing fluency between 1984 and 1996 were seen in fourth- and eighth-grade students' essays.

At grade 4, holistic scoring of the persuasive task "Spaceship" showed no overall increase in students' writing fluency between 1984 and 1996. However, there was a significant increase in the percentage of papers rated in the upper half of the holistic scale (that is, papers receiving a rating of 4, 5, or 6). Fourth-graders writing for the narrative task "Flashlight" showed an increase in the percentage of papers receiving a rating of 4, but no change in the overall rating of performance between 1984 and 1996.

Eighth-graders' essays showed improvement in 1996 on both of the tasks analyzed holistically, the informative task "Food on the Frontier" and the persuasive task "Recreation Opportunities." At grade 11, no change was seen in writing fluency on either of these tasks when comparing 1996 papers to those written in 1984.

Grammar, spelling, and punctuation

Differences in the use of grammar, spelling, and punctuation conventions between 1984 and 1996 were primarily in the direction of improvement at grades 8 and 11. For both 8th- and 11th-graders, the percentage of awkward sentences and punctuation error rates decreased, even as papers contained more sentences and more words. But there was a more mixed picture at grade 4: fourth-graders showed a decrease in one kind of error but an increase in three other kinds of errors.

English language conventions were examined in papers written in 1984 and 1996 for the task "Spaceship" at grade 4 and for the task "Recreation Opportunities" at grades 8 and 11. A subsample of papers from 1984 and 1996 had been coded by experts so that students' control of the conventions of the English language could be analyzed. Overall, these indicators of performance at the three grades suggest that there were some changes in students' mastery of English language conventions between 1984 and 1996.

The number of words and sentences written by 8th- and 11th-grade students increased between 1984 and 1996. Over the same period, however, there was no change in the rate of errors (number of errors per 100 words) in all three grades.

While there were increases in percentages of sentence fragments in 4th- and 8th-grade papers, there were declines in the percentage of awkward sentences in 8th- and 11th-graders' papers compared to 1984.

At all grades, the percentage of spelling errors remained unchanged, comparing 1984 to 1996. The percentage of incorrect word choices was unchanged in grades 8 and 11 but increased at grade 4. At grades 8 and 11, the punctuation error rate decreased while the number of punctuation marks used per paper increased.

Figure B provides a synopsis comparing student use of grammar, punctuation, and spelling conventions in 1984 and 1996. Measures in the first section are characteristics desirable for these NAEP long-term trend writing tasks. An increase in prevalence in 1996 compared to 1984 is desirable, and "increase" is shown in bold text. Decreases in 1996 compared to 1984 are undesirable, and those cells are black with white text. The middle section contains characteristics that are neutral; that is, changes in these measures are of interest, but there is no clear advantage or disadvantage to either increase or decrease. The lower section contains measures of writing error, with the notation of increase or decrease. In this section, decreases are desirable and are in bold text, while increases (undesirable) are shown in black cells with white text. Throughout the table, empty cells indicate that no statistically significant change occurred in 1996 compared to 1984.

Of the measures of students' control of writing reported here, at grade 4, one measure of writing error showed improvement (that is, the percentage of sentences with end mark errors declined), while three showed increases in error rate (that is, the prevalence of sentence fragments, incorrect word choice, and comma/dash errors increased). At grade 4, there was no change in most characteristics reported here. At grades 8 and 11, students were writing more in 1996, although the rate at which they used more sophisticated sentence constructions had decreased. At grade 8, the good news was that two desirable characteristics improved and three errors decreased, and only two changes indicated problems (that is, the use of complex sentence structures decreased while sentence fragments increased). At grade 11, improvement occurred in two desirable characteristics and for three types of errors, while only one change in a desirable characteristic indicated a problem (that is, the use of complex sentence structures decreased).

Observations

Students at all three grade levels wrote at least as fluently in 1996 as they did in 1984, while students at grade 8 demonstrated improved fluency on the informative and persuasive tasks.

When writing mechanics are considered, the overall picture is of improvement in grades 8 and 11, but there are several declines at grade 4. In the 8th and 11th grades, students wrote more, as indicated by the increase in the number of words and sentences in their responses, while demonstrating no increase in the number of errors per 100 words. A summary of the measures can be seen in figure B.

Thus, increased instructional emphasis on writing processes over the 12 years between 1984 and 1996 appears associated with modest improvements in students' mastery of the conventions of written English at grades 8 and 11. During this time period, the overall fluency of 8th-graders' writing has also improved. It appears that the process approach to writing, in which planning, writing, and revision through several drafts are practiced, gives students the opportunity to write more and to employ editing strategies, which in turn affords them the opportunity to improve their mastery of the writing conventions reported here.

Figure B.—Average change from 1984 to 1996 in writing mechanics measures in this report

Mechanics measures	Grade 4	Grade 8	Grade 11
Desirable characteristics—increase shows improvement			
Average number of full words per paper		**increase**	**increase**
Average number of sentences per paper		**increase**	**increase**
Average number of words per sentence			
Percentage of complex or compound sentences		**decrease**	**decrease**
Neutral characteristics			
Percentage of simple sentences			increase
Average number of punctuation marks used		increase	increase
Comma and dash use rate			
End mark use rate			increase
Other punctuation use rate	increase		increase
Writing errors—decrease shows improvement			
Average number of all errors per 100 words			
Percentage of run-on sentences			
Percentage of sentence fragments	**increase**	**increase**	
Percentage of awkward sentences		**decrease**	**decrease**
Percentage of incorrect word choice	**increase**		
Percentage of spelling errors			
Punctuation error rate (without omissions)		**decrease**	**decrease**
Punctuation omission rate			
Comma and dash error rate	**increase**		
End mark error rate		**decrease**	
Percentage of sentences with end mark errors	**decrease**		**decrease**
Other punctuation error rate			

NOTE: If neither increase nor decrease is shown, there was no statistically significant change. Bold text indicates a *desirable* change; white text indicates an *undesirable* change; and regular text a *neutral* change.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress, 1996 Long-Term Trend Assessment. (Originally published as figure 5.1 on p. 33 of the complete report from which this article is excerpted.)

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To obtain the complete report (NCES 1999–456), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Community Service Participation of Students in Grades 6–12

This article was originally published as an Indicator of the Month, taken from **The Condition of Education 1998*****. The sample survey data are from the NCES National Household Education Survey (NHES).***

One objective of the National Education Goals is that all students be involved in activities that promote and demonstrate good citizenship and community service. Participating in community service may reduce the feeling of alienation from society that adolescents often experience and may have a positive effect on students' grades and school attendance. Student participation in service activities also benefits the community by providing scarce resources for various service projects. Data on student participation in community service activities may help school administrators assess their current community service requirements and help them find ways to integrate community service activities into the curriculum.

- In 1996, about half (49 percent) of students in grades 6–12 participated in community service: 26 percent participated on a regular basis, and 23 percent participated once or twice during the school year.
- Students in grades 6–12 were more likely to participate in community service if an adult in the household also did so. For example, 32 percent of students who lived in a household with an adult who participated in community service participated regularly, compared to 19 percent of students in a household with an adult who did not participate.

Percentage of students in grades 6–12 who participated or planned to participate in community service, by selected student characteristics: 1996

	Participated in community service[1]				
Student characteristics	**Total**	**Regular participation**	**One or two times**	**Will participate before the end of the school year[2]**	**Plan to do community service next year**
Total	49.1	25.6	23.4	31.1	80.5
Grade level					
6–8	47.4	23.0	24.4	34.1	84.4
9–10	45.4	23.6	21.8	34.5	82.9
11–12	56.1	32.4	23.7	22.3	71.1
Parents' highest education level					
Less than high school diploma	33.8	15.4	18.4	43.5	78.8
High school diploma or GED	42.1	22.3	19.8	35.5	76.5
Some college or vocational/technical	48.4	25.4	23.0	30.5	79.4
Bachelor's degree	58.0	29.2	28.7	25.7	83.5
Graduate/professional school	64.3	35.2	29.1	21.6	88.2
Any adult in the household who performs community service					
Yes	57.5	31.7	25.8	28.4	86.4
No	39.4	18.7	20.8	34.2	73.7

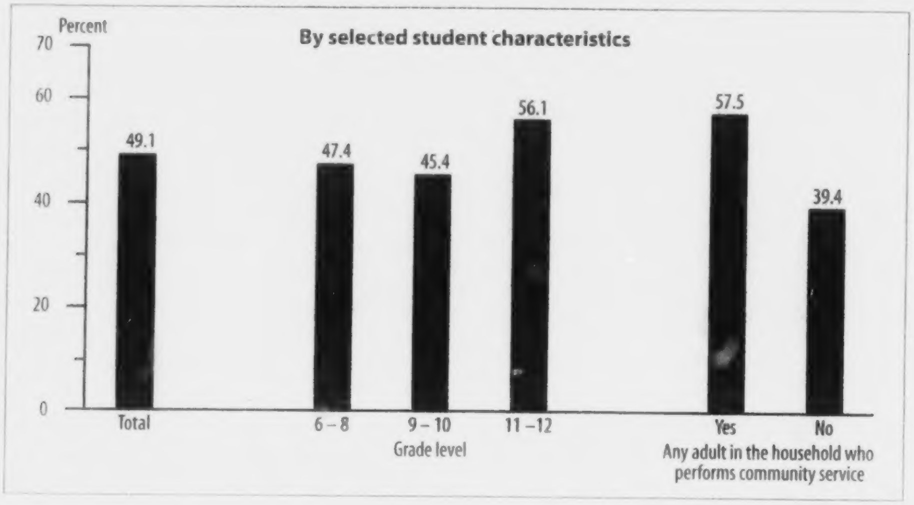
[1] Data were collected from January 2, 1996, through April 13, 1996. Any student who reported participating in at least one activity more than twice during the school year was classified as a regular participant. Students may have participated in multiple activities without being classified as regular participants if no individual activity was performed more than twice.

[2] Only students who had performed no community service by the time of the interview were asked if they had plans to participate.

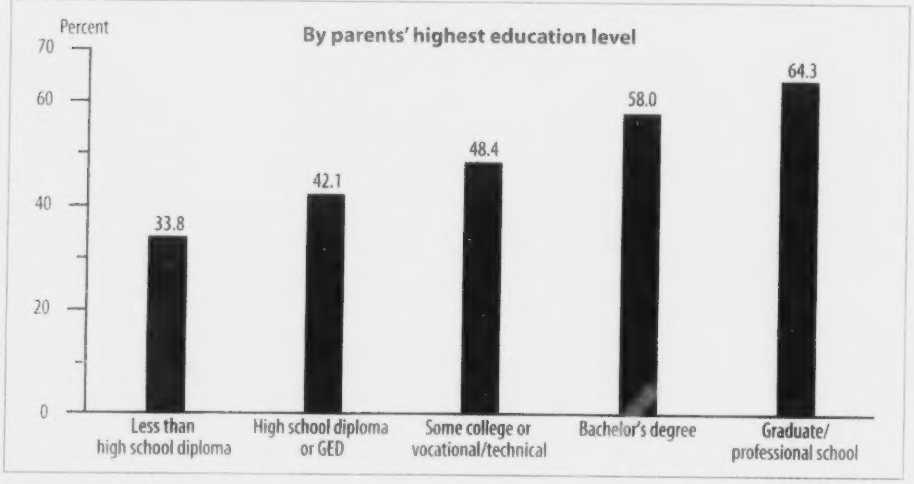
NOTE: Includes students in school in grades 6–12, not just those who participated or planned to participate in community service. Ungraded students or children who were home schooled were not included in this analysis. Details may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1996 (Youth Civic Involvement Component).

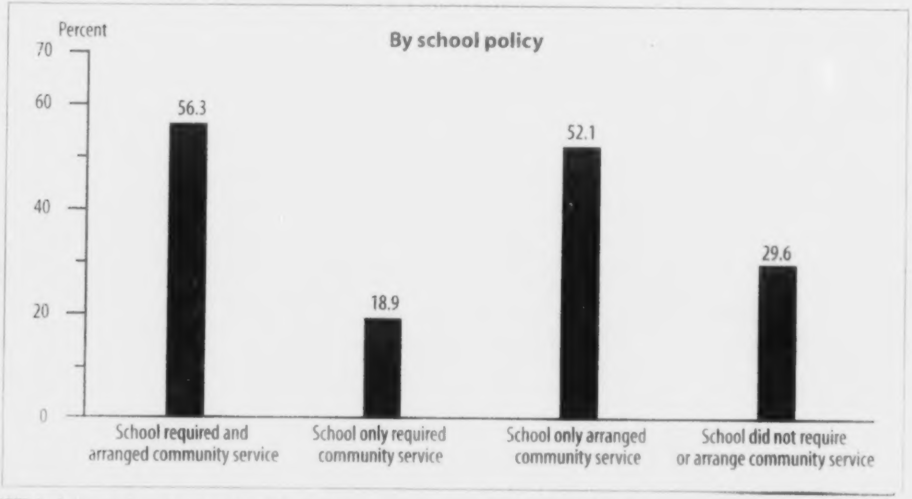
Percentage of students in grades 6–12 who participated in community service: 1996



By selected student characteristics



By parents' highest education level



By school policy

NOTE: Includes students in school in grades 6–12, not just those who participated or planned to participate in community service. For schools that required students to participate in community service, students must have completed the community service before graduation.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1996 (Youth Civic Involvement Component).

- Students who were involved in student government, other school activities, or nonschool activities, or who worked for pay, were more likely to participate in community service than students who were not involved in these activities.
- Student participation rates in schools that only arranged community service were higher than student participation rates in schools that only required community service. Participation rates in schools that both required and arranged community service were similar to the rates in schools that only arranged community service.

Data source: The following component of the 1996 National Household Education Survey (NHES): Youth Civic Involvement.

For technical information, see

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For complete supplemental and standard error tables, see either

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- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999–025).

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Summer Activities of Students Enrolled in Grades 1–12

This article was originally published as an Indicator of the Month, taken from* The Condition of Education 1998. *The sample survey data are from the October Current Population Survey (CPS), conducted by the U.S. Census Bureau.

Students engage in a variety of activities during their summer vacations that provide them with educational opportunities. Some students attend summer school to retake subjects failed during the academic year, to improve their basic skills, or to take courses that are unavailable or for which there is not sufficient time during the regular school year. If they are older, students may take college-level courses for credit. Other students may choose to participate in organized activities, such as sports or activities for which they do not have time during the academic year, and some may work for pay or participate in internships or community service. Examining which summer activities students participate in may indicate which opportunities are valued most by students and their parents.

- In summer 1996, 9 percent of students in grades 1–12 attended summer school, and 38 percent participated in other organized summer activities. Among students who were enrolled in grades 8–12, 26 percent worked for pay during the summer, 2 percent participated in unpaid internships, and 9 percent participated in community service.
- In summer 1996, students in grades 1–7 were more likely than students in higher grades to attend summer school to improve basic skills, while students in grades 8–12 were more likely than students in grades 1–7 to attend summer school to retake a subject.

Percentage of students ages 6–20 who were enrolled in grades 1–12 and who participated in various summer activities, by selected student characteristics: Summer 1996

Student characteristics	Attended summer school	Participated in other organized summer activities	Worked for pay[1]	Participated in unpaid internship[1]	Participated in community service[1]
Total[2]	9.2	37.7	26.3	2.0	9.4
Grade level					
1–7	7.5	41.9	—	—	—
8–10	9.9	35.5	13.2	1.8	9.0
11–12	14.9	27.7	47.5	2.3	10.4
Race/ethnicity					
White	7.3	45.0	30.8	2.2	10.9
Black	11.0	24.8	17.4	1.5	6.5
Hispanic	14.0	19.2	16.0	1.5	5.9
Parents' highest education level[3]					
Less than high school diploma	10.5	12.1	14.3	1.1	3.4
High school diploma or GED	7.8	28.1	25.6	1.8	5.8
Some college	9.5	40.5	29.5	2.0	10.2
Bachelor's degree or higher	9.9	57.2	28.6	2.6	15.0

— Not applicable.

[1] For students enrolled in grades 8–12.

[2] Included in the total but not shown separately are students ages 6–20 whose grade levels were unknown, students from other racial/ethnic groups, and students whose parents' highest education level was not available.

[3] A parent's highest education level was determined by merging information from the parent's records with information from the child's records. When no parent resided with the student, information from the child's guardian was used.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October 1996.

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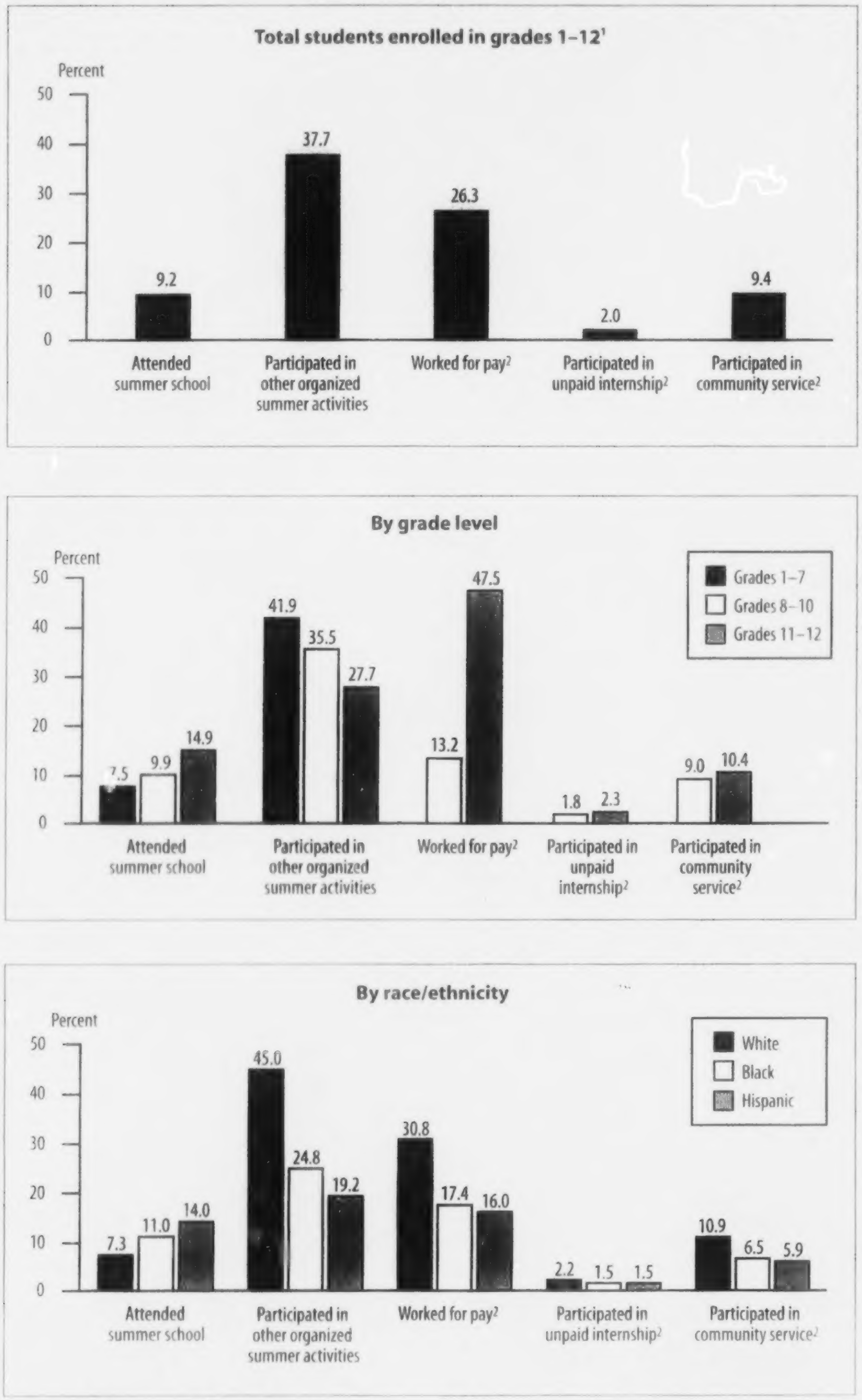
Percentage of students ages 6–20 who were enrolled in grades 1–12 and who participated in various summer activities: Summer 1996



[1] Included in the total but not shown separately are students ages 6–20 whose grade levels were unknown and students from other racial/ethnic groups.

[2] For students enrolled in grades 8–12.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October 1996.

- Black and Hispanic students in grades 1–12 were more likely to attend summer school than their white peers. White students in grades 8–12, however, were more likely than black and Hispanic students to work for pay and participate in community service.
- Students in grades 1–12 were equally likely to attend summer school, regardless of family income. In contrast, students from high-income families were more likely to participate in community service and other organized summer activities and to work for pay than their peers from low- or middle-income families.

Data source: The U.S. Census Bureau's Current Population Survey (CPS), October 1996.

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education 1998* (NCES 98-013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education 1998 (http://nces.ed.gov/pubs98/condition98/index.html)*, or
- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999–025).

Author affiliations: J. Wirt and T. Snyder, NCES; J. Sable, Y. Bae, and J. Stennett, Pinkerton Computer Consultants, Inc.; S.P. Choy, MPR Associates, Inc.; and M. Perie and A. Gruner, American Institutes for Research.

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Student Work and Teacher Practices in Mathematics

Julia H. Mitchell, Evelyn F. Hawkins, Pamela M. Jakwerth, Frances B. Stancavage, and John A. Dossey

This article was excerpted from the Introduction and Summary of the report of the same name. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1996 Mathematics Assessment.

Introduction

The National Assessment of Educational Progress (NAEP) is mandated by the United States Congress to survey the educational accomplishments of U.S. students and monitor changes in those accomplishments. For more than 25 years, NAEP has assessed the educational achievement of 4th-, 8th-, and 12th-grade students in selected subject areas, making it the only nationally representative and continuing assessment of what U.S. students know and can do. NAEP assessments are based on content frameworks and specifications developed through a national consensus process involving teachers, curriculum experts, parents, and members of the general public. The frameworks are designed to reflect a balance among the emphases suggested by current instructional efforts, curriculum reform, contemporary research, and desirable levels of achievement.

Purpose and audience for the report

In 1996, NAEP assessed the abilities of students at grades 4, 8, and 12 in the subjects of mathematics and science. The first release of results from the mathematics assessment appeared in the *NAEP 1996 Mathematics Report Card* (Reese et al. 1997), a report designed to provide policymakers and the public with a broad view of student achievement.

The current report, which provides a more detailed perspective on mathematics achievement and practices in 1996, is primarily for teachers, curriculum specialists, and school administrators. To illustrate what students know and can do, the report presents examples of student work in five different content strands of mathematics. Information on current instruction in mathematics classes, as reported by students and teachers, also is included.

A companion report, *School Policies and Practices Affecting Instruction in Mathematics* (Hawkins, Stancavage, and Dossey 1998), provides information on school policies and other practices affecting mathematics education.

Content of the report

This report presents three types of information derived from the NAEP 1996 mathematics assessment: (1) information on what students know and can do in mathematics, (2) information on course-taking patterns and current classroom practices in this subject area, and (3) information on student attitudes about mathematics. The first portion of this information is derived from an analysis of student performance on the actual assessment exercises; the latter two portions draw upon the questionnaires completed by the students who participated in the assessment and their mathematics teachers.

The chapters on student work are organized around the five content strands assessed by NAEP: Number Sense, Properties, and Operations; Measurement; Geometry and Spatial Sense; Data Analysis, Statistics, and Probability; and Algebra and Functions. Within these chapters, the discussion also highlights students' proficiency on a number of cognitive skills that cut across the different content areas. These include conceptual understanding, procedural knowledge, and problem solving, as well as the ability to reason in mathematical situations, to communicate perceptions and conclusions drawn from a mathematical context, and to connect the mathematical nature of a situation with related mathematical knowledge and information gained from other disciplines or through observation.

Student Work

Trend comparisons

In 1990, NAEP gathered baseline achievement data for 4th-, 8th-, and 12th-grade students, using a newly developed mathematics framework. Two subsequent assessments, based on the same framework and administered in 1992 and 1996, offered the opportunity to track trends in achievement. The results have been promising, indicating statistically significant improvements in overall mathematics performance at all three grade levels and in each of the five content strands. The gains were largest between 1990 and 1992, but additional gains also were evident between 1992 and 1996 on the overall composite scale and for some of the content strands. Specifically, student performance in Geometry and Spatial Sense and in Algebra and Functions improved at all grade levels; performance in Number Sense, Properties, and Operations and in Data Analysis, Statistics, and Probability improved at 4th grade; and student performance in Measurement and in Data Analysis, Statistics, and

Probability improved at 12th grade. When the achievement trends were disaggregated by race and gender, the direction of change still was generally positive for most comparisons. However, trend comparisons for some of the smaller or more diverse groups did not achieve statistical significance; as a result, one cannot say with certainty that these gains did not simply reflect chance variation due to sampling.

Subgroup comparisons

Gender. In 1996, gender differences in performance favoring males were observed for overall proficiency and three content strands at grade 4 (Number Sense, Properties, and Operations; Measurement; and Algebra and Functions) and for two content strands at grade 12 (Measurement, and Geometry and Spatial Sense).

Race/ethnicity. In 1996, white and Asian/Pacific Islander students at grades 4 and 12 and white students at grade 8 performed better than other racial/ethnic groups overall and in each of the content strands of mathematics.[1] Hispanic students performed better than black students in Geometry and Spatial Sense at grade 4; in Measurement and in Geometry and Spatial Sense at grade 8; and in Measurement and in Data Analysis, Statistics, and Probability at grade 12. American Indian students performed better than black and Hispanic students in all strands at grade 4 and outperformed black students in all content strands and Hispanic students in all strands but Geometry and Spatial Sense at grade 8. At grade 12, Asian/Pacific Islander students performed better than white students in Algebra and Functions.

Course taking. In general, taking more mathematics courses and more advanced mathematics courses was associated with improved mathematics performance in all content strands. Eighth-grade students enrolled in algebra performed better in all content strands than eighth-grade students enrolled in pre-algebra or eighth-grade mathematics, and eighth-grade students enrolled in pre-algebra performed better than students enrolled in eighth-grade mathematics in all but one of the content strands (Geometry and Spatial Sense).

Twelfth-grade results show a similar story. Students at any given point in the algebra-through-calculus sequence performed better than students whose mathematics exposure had stopped at the next lowest course in the sequence, with one exception: students whose highest course had been pre-algebra did not perform significantly better than students who had taken neither pre-algebra nor algebra. Similarly, students who had taken geometry performed better in all content strands than those who had not taken geometry.

In addition, taking more mathematics courses in high school was related to higher mathematics performance, with one exception: students who took 3–4 semesters of mathematics did not perform significantly better in Measurement than students who took only 1–2 semesters.

Content strands

Number Sense, Properties, and Operations. Students scoring in the *Basic* achievement level or above appeared to grasp many of the fundamental concepts and properties of and relationships between numbers, and displayed the skills required for manipulating numbers and completing computations. Questions assessing proportional thinking, requiring multistep solutions, or involving new concepts tended to be more difficult. Additionally, questions requiring students to solve problems and communicate their reasoning proved challenging, and often it was the communication aspect that provided the most challenge.

Measurement. Many of the measurement questions were difficult for students, particularly those requiring unit conversions, calculations of volume and circumference, and estimation.

Eighth-grade algebra students tended to perform better than other eighth-grade students, whereas eighth-grade students in pre-algebra or eighth-grade mathematics tended to perform similarly. At the 12th-grade level, students whose highest course was second-year algebra tended to outperform those who had only reached first-year algebra, and students who reported calculus as their highest mathematics course tended to perform better than those who had taken less advanced mathematics courses.[2]

Geometry and Spatial Sense. Most of the questions in this content strand required a drawn or written response, and many were difficult for students. Questions in this content strand also relied upon students' visual-spatial skills. In several of the sample questions, a significant difference was found between the performance of male and female students. Here also, eighth-grade algebra students tended to outperform other eighth-grade students, whereas eighth-grade students in pre-algebra and those in eighth-grade mathematics performed similarly. In addition, on some of the questions, 12th-grade students who had taken at least second-year algebra outperformed those who had not and, similarly, students who had taken at least third-year algebra or pre-calculus outperformed those who had not.

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[1] Results for eighth-grade Asian/Pacific Islander students are not included in the main body of this report due to concerns about the accuracy and precision of the national estimates.

[2] Performance in Measurement and in Geometry and Spatial Sense was not analyzed with respect to whether students had taken a course in geometry because of the variability in mathematics course sequencing, the small percentage of students for whom the impact of geometry can be isolated, and the difficulty associated with identifying the effect of a particular curriculum on the performance of students in advanced mathematics.

Data Analysis, Statistics, and Probability. In this content strand, students seemed to perform better on questions that asked them to make straightforward interpretations of graphs, charts, and tables as opposed to those requiring them to perform calculations with displayed data. Students had difficulty explaining why one method of reporting or displaying data was better than another, even though they may have recognized which was the better method. Questions asking students to determine chance or probability also were difficult.

Algebra and Functions. The majority of students at all grade levels appeared to understand basic algebraic representations and simple equations, as well as how to find simple patterns. The more proficient students at grades 8 and 12 were able to demonstrate knowledge of linear equations, algebraic functions, and trigonometric identities, but even those students found that questions requiring them to identify and generalize complex patterns and solve real-world problems were challenging. In general, for 8th- and 12th-grade students, those with more advanced coursework performed better in this content strand.

Classroom Teaching

Course-taking patterns

In 1996, the modal group, but not the majority, of eighth-grade students, regardless of whether they were male or female, were enrolled in eighth-grade mathematics, and most of the remaining students were enrolled in pre-algebra or algebra. Trends over time show increases in the percentage of eighth-grade students taking more advanced mathematics courses.

These positive trends also were evident at the 12th-grade level. For example, the 1996 percentage of 12th-grade students enrolled in mathematics was significantly higher than the 1990 percentage. In addition, over time more students appear to be initially taking first-year algebra earlier in their school careers. Examination of the highest course taken by 12th-grade students in an algebra-through-calculus sequence showed that in 1996, almost half of the 12th-grade students indicated second-year algebra as their highest course taken. In the remaining half, fewer students indicated a course higher than second-year algebra as their highest course taken than indicated a lower level course as their highest course taken.

Classroom practices

In 1996, teachers of fourth- and eighth-grade students were asked about the emphasis they placed on different mathematics content and processes in their mathematics instruction. The majority of fourth- and eighth-grade students were receiving mathematics instruction with more emphasis on Number Sense, Properties, and Operations; Measurement; and Geometry and Spatial Sense than on Data Analysis, Statistics, and Probability; and Algebra and Functions. Perhaps as expected, more emphasis was placed on Data Analysis, Statistics, and Probability and on Algebra and Functions at the eighth-grade level than at the fourth-grade level. In all of the eighth-grade mathematics classes, students experienced similar levels of emphasis on the mathematics content strands, except for Algebra and Functions, which was more heavily emphasized in the algebra classes. Mathematics instruction at grades 4 and 8 placed more emphasis on learning mathematics facts and concepts and on learning skills and procedures needed to solve routine problems than on developing reasoning ability or on learning how to communicate ideas in mathematics effectively.

Teachers of 4th- and 8th-grade students, as well as 12th-grade students, were asked about a variety of instructional practices that were being implemented in their mathematics classes. In 1996, results showed differences in the frequencies of implementation of some practices at different grade levels. For example, working with objects like rulers and other manipulatives was more common at the 4th-grade level and in less advanced mathematics courses taken by 8th-grade students. Similarly, the majority of 4th- and 8th-grade students worked at least once a week with other students to solve mathematics problems, while this type of structured interaction was less frequent among 12th-grade students.

Reports on these practices over time show some significant changes. For example, while the practice of writing a few sentences about how to solve a mathematics problem was relatively rare among fourth-grade students, there have been increases in frequency over time. On average, few students at grades 4 and 8 were writing reports or doing mathematics projects, but changes over time show increases in the frequency of implementation of this practice also.

In 1996, the frequency with which calculators were used increased with increasing grade level and with mathematics content at the 8th-grade level. Furthermore, the use of calculators has increased over time. The majority of 8th- and 12th-grade students taking mathematics reported using scientific calculators to do schoolwork. At the 8th-grade level, the use of scientific and graphing calculators was more common in the higher level mathematics courses than in the lower level courses. A majority of the 12th-grade students taking mathematics reported using graphing calculators, although only about one in ten 8th-grade students did. In addition, the unrestricted use of calculators and the use of calculators on mathematics tests were more common among 8th-grade than 4th-grade students and among 8th-grade students in higher level mathematics courses than among those in lower level courses.

Finally, students in grade 12 reported being tested more frequently in mathematics than teachers reported that fourth- and eighth-grade students were tested. Teachers of grades 4 and 8 reported less testing with multiple-choice questions than with constructed-response questions and less use of individual or group projects than of written responses. Teachers' use of portfolios was more common with fourth- than with eighth-grade students.

Student Attitudes Toward Mathematics

The NAEP 1996 mathematics assessment probed student attitudes and beliefs about mathematics. In particular, it examined students' agreement with three specific statements: "I like mathematics"; "If I had a choice, I would not study any more mathematics"; and "Everyone can do well in mathematics if they try." In general, the majority of students at each grade level rendered a response that was favorable to mathematics. However, the percentage offering a favorable response declined with grade level. Liking mathematics and being willing to study more mathematics were both positively associated with students' mathematics course taking. That is, favorable responses were more frequent among 8th-grade students enrolled in algebra, 12th-grade students enrolled in any mathematics class, and 12th-grade students who had completed more advanced coursework. These associations with course taking were not, however, apparent in students' opinions on the relationship between effort and mathematics achievement. In fact, 8th-grade students enrolled in algebra were *less* likely than those enrolled in 8th-grade mathematics to agree that "everyone can do well in mathematics if they try."

Conclusions

Performance of U.S. students in mathematics continues to improve. Since 1990, improved performance overall at all three grade levels and in each of the five content strands has been observed. When the achievement trends observed in 1996 were disaggregated by race and gender, improvement in performance continued to be observed for most groups. In addition, taking more, and more advanced, coursework in mathematics was associated with improved performance in all content strands.

Examination of student work revealed that certain types of questions were harder for some students than others. In particular, questions involving new concepts or requiring multistep solutions, written (or drawn) explanations of students' reasoning, problem solving, estimation, or the use of spatial skills were difficult for students. Straightforward questions that required simple (decontextualized) calculations were easier.

While examination of 1996 course-taking patterns revealed that more students appear to be taking more, and more advanced, mathematics courses than before, a look at classroom practices indicated that students still need more exposure to communicating effectively about mathematics. In particular, students need more practice writing about how to solve mathematical problems and discussing how to solve problems reflecting real-life situations. Activities of this sort invite students to engage more fully with the content of mathematics, can serve to increase students' ability to think analytically, and are necessary for improving performance on more difficult cognitive questions.

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Data source: The National Assessment of Educational Progress (NAEP) 1996 Mathematics Assessment.

For technical information, see the complete report:

Mitchell, J.H., Hawkins, E.F., Jakwerth, P.M., Stancavage, F.B., and Dossey, J.A. (1999). *Student Work and Teacher Practices in Mathematics* (NCES 1999–453).

For additional details on survey methodology, see

Allen, N.L., Carlson, J.E., and Zelenak, C.A. (forthcoming). *The NAEP 1996 Technical Report* (NCES 1999–452).

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Student Work and Teacher Practices in Science

Christine Y. O'Sullivan and Andrew R. Weiss

This article was originally published as the Highlights of the report of the same name. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1996 Science Assessment.

In 1996, the National Assessment of Educational Progress (NAEP) assessed the knowledge and skills of students in the areas of earth science, life science, and physical science. It also collected information relating to the background of students (grades 4, 8, and 12), their teachers (grades 4 and 8), and the schools they attended (grades 4, 8, and 12). This report is intended primarily for teachers; hence, the results presented relate directly to students' performance, classroom practices, and school climate. The report also discusses students' attitudes and beliefs about science.

Performance, Knowledge, and Skills

- At grades 4 and 8, the amount of exposure to the different fields of science was not associated with differences in the composite, life science, earth science, or physical science average scale scores of students or the percentage of students at or above *Proficient*.
- At grades 4 and 8, male students had a higher average question score than female students for questions that measured conceptual understanding. At grade 12, male students outperformed female students on questions that measured conceptual understanding and practical reasoning.
- At grades 4, 8, and 12, white students had a higher average question score than black and Hispanic students for questions that measured earth, physical, and life science and also for questions that measured conceptual understanding, scientific investigation, and practical reasoning.

Classroom Practices

- Seventy-eight percent of fourth-graders and 88 percent of eighth-graders had teachers who reported placing heavy emphasis on understanding key science concepts. These students had higher average scale scores and were more likely to be at or above the *Proficient* level than students whose teachers placed less emphasis on this objective.
- Forty-one percent of students in grade 8 had teachers who reported placing a heavy emphasis on developing laboratory skills; 15 percent of fourth-graders had teachers who reported the same emphasis. The eighth-grade students had higher average scale scores and were more likely to perform at or above the *Proficient* level than eighth-graders whose teachers reported placing less emphasis on laboratory skills. There was no difference in performance among fourth-graders that was associated with how much emphasis their teachers gave to developing laboratory skills.
- Teachers of 56 percent of fourth-graders and 80 percent of eighth-graders reported students doing hands-on activities at least once or twice a week. At the eighth-grade level, students who did hands-on activities almost every day or once or twice a week had higher scale scores and were more likely to be at or above the *Proficient* level than students who did hands-on activities once or twice a month or never or hardly ever. A similar pattern was seen at grade 12, based on self-reporting by students. No differences were seen at the fourth-grade level.
- Approximately half of the student population at grades 4 and 8 had teachers who reported not using computers for instruction in science.
- Teachers of 42 percent and 87 percent of students in grades 4 and 8, respectively, reported that they expected their students to spend 1 hour or more on their homework each week.

Attitudes, Motivation, and School Climate

- At the 4th-grade level, 67 percent of students said they liked science. The percentages were somewhat lower for 8th- and 12th-graders: 50 and 52 percent, respectively. Those who said they liked science outperformed those who said they did not like science.
- In general, the greater the number of positive attitudes toward science, the higher the performance of students at grades 4, 8, and 12.

- The percentage of students who thought it was important to do well on the NAEP science assessment was highest at the 4th-grade level, 59 percent, and lowest at the 12th-grade level, 9 percent. Students who thought it most important to do well did not necessarily perform better than students who thought it less important to do well.
- Where the school problems of student absenteeism, teacher absenteeism, and lack of parental involvement were more severe, as reported by school administrators, student performance was lower.

Data source: The National Assessment of Educational Progress (NAEP) 1996 Science Assessment.

For technical information, see the complete report:

O'Sullivan, C.Y., and Weiss, A.R. (1999). *Student Work and Teacher Practices in Science* (NCES 1999-455).

For additional details on survey methodology, see

Allen, N.L., Carlson, J.E., and Zelenak, C.A. (forthcoming). *The NAEP 1996 Technical Report* (NCES 1999-452).

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To obtain the complete report (NCES 1999-455), call the toll-free ED Pubs number (877-433-7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202-512-1800).

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Dropout Rates in the United States: 1997

Phillip Kaufman, Steve Klein, and Mary Frase

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data come primarily from the U.S. Census Bureau's October Current Population Survey (CPS), and the universe data primarily from the NCES Common Core of Data (CCD).

This is the 10th in a series of National Center for Education Statistics reports on high school dropout and completion rates. It presents data on rates in 1997, the most recent year for which data are available, and includes time series data on high school dropout and completion rates for the period 1972 through 1997. In addition to extending time series data reported in earlier years, this report examines the characteristics of high school dropouts and high school completers in 1997.

Event Dropout Rates

Event dropout rates for 1997 describe the proportion of youths ages 15 through 24 years who dropped out of grades 10 to 12 in the 12 months preceding October 1997. Demographic data collected in the Current Population Survey (CPS) permit event dropout rates to be calculated across a variety of individual characteristics, including race, sex, region of residence, and income level.

- About 5 out of every 100 young adults enrolled in high school in 1996 left school before October 1997 without successfully completing a high school program. This estimate of 4.6 percent was similar to those reported over the last 10 years, but lower than in the early 1970s (table A and figure A).
- Hispanic students were more likely than white and black students to leave school short of completing a high school program: in 1997, 9.5 percent of Hispanics were event dropouts, compared with 3.6 percent of white and 5.0 percent of black students. Event dropout rates were not significantly different between white and black students.
- In 1997, young adults living in families with incomes in the lowest 20 percent of all family incomes were nearly seven times as likely as their peers from families in the top 20 percent of the income distribution to drop out of high school.
- Students who remained in high school longer than the majority of their age cohort dropped out at higher rates than their younger peers.
- Although dropout rates were highest among students age 19 or older, about two-thirds (69 percent) of the current-year dropouts were ages 15 through 18; moreover, 35 percent of the 1997 dropouts were 15 through 17 years of age.

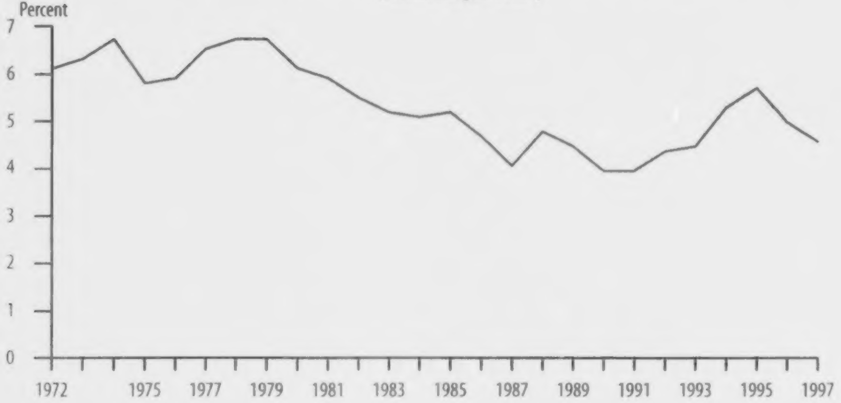
Status Dropout Rates

Over the last decade, between 300,000 and 500,000 10th- through 12th-grade students left school each year without successfully completing a high school program. Each year, some of these young adults return to school or an alternative certification program, and others pass out of this age group. Status dropout rates represent the proportion of young adults ages 16 through 24 who are out of school and who have not earned a high school credential.

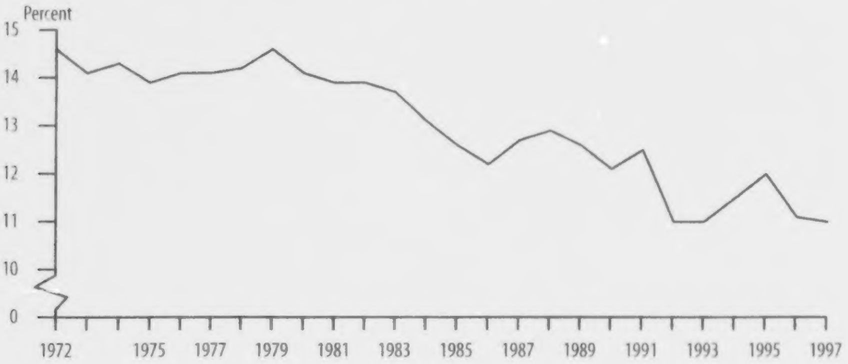
- In October 1997, some 3.6 million young adults were not enrolled in a high school program and had not completed high school. These youths accounted for 11.0 percent of the 33 million 16- through 24-year-olds in the United States in 1997 (table A and figure A). As noted with event rates, this estimate is consistent with those reported over the last 10 years, but lower than in the early 1970s.
- Status dropout rates of whites remain lower than for blacks, but over the past quarter century the difference between blacks and whites has narrowed.
- Hispanic young adults in the United States continue to have higher status dropout rates than either whites or blacks. In 1997, 25.3 percent of Hispanic young adults were status dropouts, compared to 13.4 percent of blacks and 7.6 percent of whites.
- Thirty-nine percent of Hispanic young adults born outside the 50 states and the District of Columbia were high school dropouts. Although the dropout rates of Hispanics born in the United States were lower, they were higher than the dropout rates of non-Hispanics born in the United States.

Figure A.—Proportion of 15- to 24-year-olds dropping out of grades 10 to 12, proportion of 16- to 24-year-olds who were dropouts, and proportion of 18- to 24-year-olds who had completed high school: October 1972 to October 1997

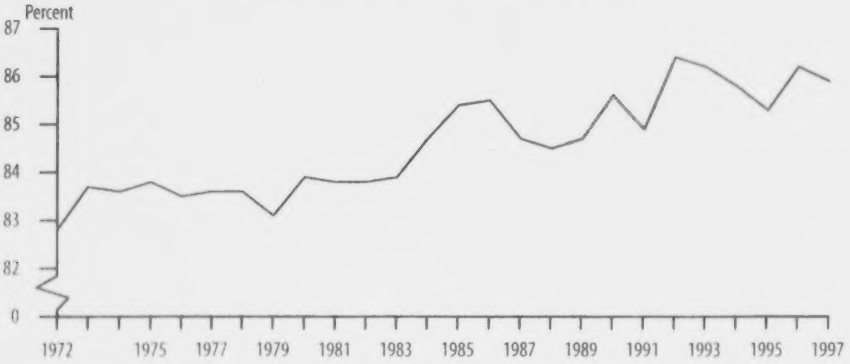
Proportion of 15- to 24-year-olds in grades 10 to 12 who dropped out in the past year (event dropout rate)



Proportion of 16- to 24-year-olds who were dropouts (status dropout rate)



Proportion of 18- to 24-year-olds who had completed high school



SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October (various years).

Table A.—Proportion of 15- to 24-year-olds dropping out of grades 10 to 12, proportion of 16- to 24-year-olds who were dropouts, and proportion of 18- to 24-year-olds who had completed high school, by race/ethnicity: October 1997

Dropout and completion measures	Total	White, non-Hispanic	Black, non-Hispanic	Hispanic
Percent of youth 15 to 24 in grades 10 to 12 dropping out, October 1996 to October 1997	4.6	3.6	5.0	9.5
Percent of youth 16 to 24 who were dropouts in 1997	11.0	7.6	13.4	25.3
Percent of youth 18 to 24 who were high school completers in 1997*	85.9	90.5	82.0	66.7

*Excludes those still enrolled in high school.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October 1997, unpublished data.

High School Completion Rates

The high school completion rate represents the proportion of 18- to 24-year-olds who have completed a high school diploma or an equivalent credential, including a General Educational Development (GED) credential.

- In 1997, about 86 percent of all 18- through 24-year-olds, not enrolled in school, had completed high school—a slight increase since the early 1970s (table A and figure A).
- The high school completion rate has increased for white and black young adults since the early 1970s, with 1997 rates of 90.5 percent for whites and 82.0 percent for blacks. Hispanic young adults have not shared in this improvement, with 66.7 percent reported as having completed high school in 1997.

Method of High School Completion

Most young adults complete a regular diploma and graduate from high school; others complete high school by an alternative route, such as by passing the GED test.

- During the 1990s, the percentage of young adults, not enrolled in school, holding a high school credential has remained relatively unchanged; however, the percentage holding an alternative certification increased from 4.9 percent in 1990 to 9.1 percent in 1997, and the percentage holding regular diplomas decreased by a similar amount.

Data sources:

NCES: The Common Core of Data (CCD), Public Elementary/Secondary Agency Universe Survey, 1993–94 through 1995–96; the National Education Longitudinal Study of 1988 (NELS:88), base year (1988), first follow-up (1990), second follow-up (1992), and third follow-up (1994); and the High School and Beyond Study (HS&B), Sophomore Cohort, first follow-up (1982).

Other: The U.S. Census Bureau's Current Population Survey (CPS), October 1972–97; and the American Council on Education, GED Testing Service's *GED Statistical Report* (1990–97).

For technical information, see the complete report:

Kaufman, P., Klein, S., and Frase, M. (1999). *Dropout Rates in the United States: 1997* (NCES 1999–082).

Author affiliations: P. Kaufman and S. Klein, MPR Associates, Inc.; M. Frase, NCES.

For questions about content, contact Chris Chapman (*Chris_Chapman@ed.gov*).

To obtain the complete report (NCES 1999–082), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Internet Access in Public Schools and Classrooms: 1994–98

Cassandra Rowand

This article was originally published as an Issue Brief. The sample survey data are from several surveys—listed at the end of this article—on advanced telecommunications and Internet access in U.S. public schools. The surveys were conducted through the NCES Fast Response Survey System (FRSS).

What sort of progress is being made in connecting every public school and classroom to the Information Superhighway? Since 1994, the federal government has been committed to assisting every school and classroom to connect to the Internet by the year 2000, and the National Center for Education Statistics (NCES) has been tracking the rate at which public schools and classrooms are meeting that goal. In 1994, NCES began surveying approximately 1,000 public schools each year about their access to the Internet, access in classrooms, and, since 1996, their type of Internet connections. NCES measured Internet access in private schools in 1995 and is currently gathering data for 1998–99.

How Much Progress Have Schools Made?

Public schools in the United States have continued to make progress toward meeting the goal of connecting every school to the Internet by the year 2000. Indeed, schools have shown increases every year since 1994, when 35 percent of public schools were connected to the Internet (table 1). In the fall of 1998, 89 percent of public schools were connected to the Internet. This is an increase of 11 percentage points from the 78 percent reported in 1997.

In 1997, schools with different characteristics had different rates of Internet access; for example, high-poverty schools,[1] schools with high minority enrollment, and smaller schools were less likely to have Internet access than other schools. By 1998, most of these differences no longer existed. High-poverty and small schools were as likely to have access to the Internet as low-poverty and larger schools. However, schools with 11 to 30 percent and 31 to 70 percent of students in poverty were slightly more likely to have Internet access than the high-poverty schools.

What Proportion of Classrooms Are Connected?

While having Internet access in 89 percent of public schools is an achievement, this number does not tell us about the degree to which students have access to the Internet. Thus, in addition to having every school connected to the Internet by the year 2000, a second goal is to have every instructional room (e.g., every classroom, computer lab, and library/media center) connected to the Internet. Schools have made strides toward this goal, with 51 percent of instructional rooms in public schools connected to the Internet in 1998. This number has nearly doubled since 1997, when 27 percent of instructional rooms were connected (table 1). The rate at which classrooms are connected may continue to grow because of the funds available starting in 1998 through the E-rate (Education rate) program. This program was established by the Telecommunications Act of 1996 to help make telecommunications services and technologies available to schools and libraries at discounted rates.[2]

There continue to be differences in instructional room access to the Internet related to school characteristics. In 1998, public schools with 50 percent or more minority enrollment had Internet access in 37 percent of instructional rooms, compared to 52, 59, and 57 percent in schools with 21 to 49 percent, 6 to 20 percent, and less than 6 percent minority enrollment, respectively. Similarly, public schools with 71 percent or more students eligible for free or reduced-price school lunch had 39 percent of their instructional rooms connected to the Internet, compared to 53 percent of rooms in schools with 11 to 30 percent of students eligible and 62 percent of rooms in schools with less than 11 percent of students eligible. Additionally, schools in the Northeast had a lower proportion of rooms connected to the Internet than schools in the Southeast, Central, and West regions (39 percent compared to 51, 61, and 51 percent, respectively).

Another measure of the pervasiveness of computers in public schools is the ratio of students to computers. According to the President's Committee of Advisors on Science and Technology (1997), a ratio of 4 to 5 students per computer represents a reasonable level for the effective use of computers within schools. Data from 1998 show approximately 6 students per instructional

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[1] High-poverty schools are defined as those with 71 percent or more of their students eligible for free or reduced-price school lunch.

[2] More information about the E-rate program is available online: *http://www.sl.universalservice.org*

Table 1.—Percent of public schools having access to the Internet, and percent of instructional rooms having access to the Internet, by school characteristics: 1994, 1997, and 1998

School characteristic	Schools			Instructional rooms		
	1994	1997	1998	1994	1997	1998
All public schools	35	78	89	3	27	51
Instructional level*						
Elementary	30	75	88	3	24	51
Secondary	49	89	94	4	32	52
Size of enrollment						
Less than 300	30	75	87	3	27	54
300 to 999	35	78	89	3	28	53
1,000 or more	58	89	95	3	25	45
Metropolitan status						
City	40	74	92	4	20	47
Urban fringe	38	78	85	4	29	50
Town	29	84	90	3	34	55
Rural	35	79	92	3	30	57
Geographic region						
Northeast	34	78	90	3	22	39
Southeast	29	84	92	2	26	51
Central	34	79	90	3	33	61
West	42	73	86	5	27	51
Percent minority enrollment						
Less than 6 percent	38	84	91	6	37	57
6 to 20 percent	38	87	93	4	35	59
21 to 49 percent	38	73	91	4	22	52
50 percent or more	27	63	82	3	13	37
Percent of students eligible for free or reduced-price school lunch						
Less than 11 percent	40	88	87	4	36	62
11 to 30 percent	39	83	94	4	32	53
31 to 70 percent	33	78	91	3	27	52
71 percent or more	19	63	80	2	14	39

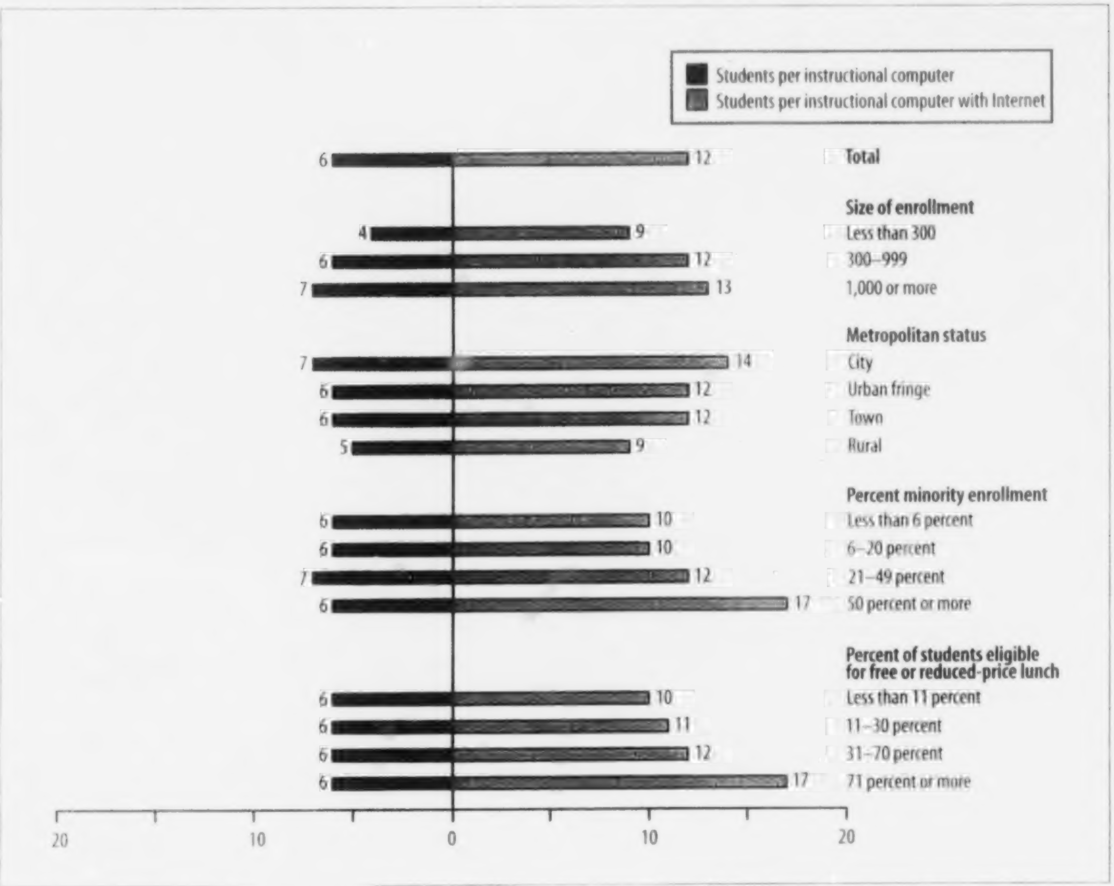
*Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Advanced Telecommunications in U.S. Public Schools, K-12* (NCES 95-731); *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, 1995* (NCES 96-854); *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (NCES 97-944); *Internet Access in Public Schools* (NCES 98-031); and data from the Fast Response Survey System, "Survey on Internet Access in U.S. Public Schools, Fall 1998," FRSS 69, 1998.

computer in public schools (figure 1). Medium-sized schools, i.e., those with 300–999 students, and large schools, those with 1,000 or more students, had less access to instructional computers than small schools, those with less than 300 students (6 and 7 students per instructional computer compared to 4). Schools located in cities had more students per instructional computer (7) than schools in urban fringe areas and towns (6 students per instructional computer for both) and schools in rural areas (5 students per instructional computer).

The ratios of students per instructional computer *with Internet access* also varied in similar ways (figure 1). Medium-sized and large schools had more students per computer with Internet access than small schools, that is, 12 and 13 students per Internet-connected computer compared to 9. Schools located in cities and urban fringe areas had more students per computer with Internet access (14 and 12, respectively) than schools in rural areas (9). Public schools with 71 percent or more students eligible for free or reduced-price school lunch had less access to computers with Internet access on a per-student basis than schools with less than 11 percent and those with 11 to 30 percent of students eligible for free or reduced-price school lunch. Schools with 50 percent or more minority enrollment also had less access than schools with less than 6 percent, 6 to 20 percent, and 21 to 49 percent minority enrollments.

Figure 1.—Ratio of students per instructional computer and students per instructional computer with Internet access, by school characteristics: Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, *Internet Access in Public Schools* (NCES 98-031); and data from the Fast Response Survey System, "Survey on Internet Access in U.S. Public Schools, Fall 1998," FRSS 69, 1998.

How Are Schools Connecting to the Internet?

One of the major determinants of the extent to which schools are able to make use of the Internet is the speed at which they are able to connect. Changes have occurred over the past 2 years regarding the type of network connections used by public schools and, therefore, the speed at which they are able to connect. In 1996, 74 percent of public schools with Internet access were connecting using dial-up connections; in 1997, 50 percent of schools were using this type of connection; and in 1998, 22 percent (figure 2). In 1998, higher speed connections using a dedicated line were used by 65 percent of public schools. This is a continued increase from 1996, when 39 percent of schools were connecting using a dedicated line, and 1997, when 45 percent were so connected. Large schools with Internet access were more likely to connect using a dedicated line than small and medium-sized schools (79 percent compared to 63 and 64 percent, respectively; data not shown). On the other hand, schools in the Northeast were more likely to connect using a dial-up connection than schools in the Central and West regions (34 percent compared to 20 and 17 percent, respectively; data not shown).

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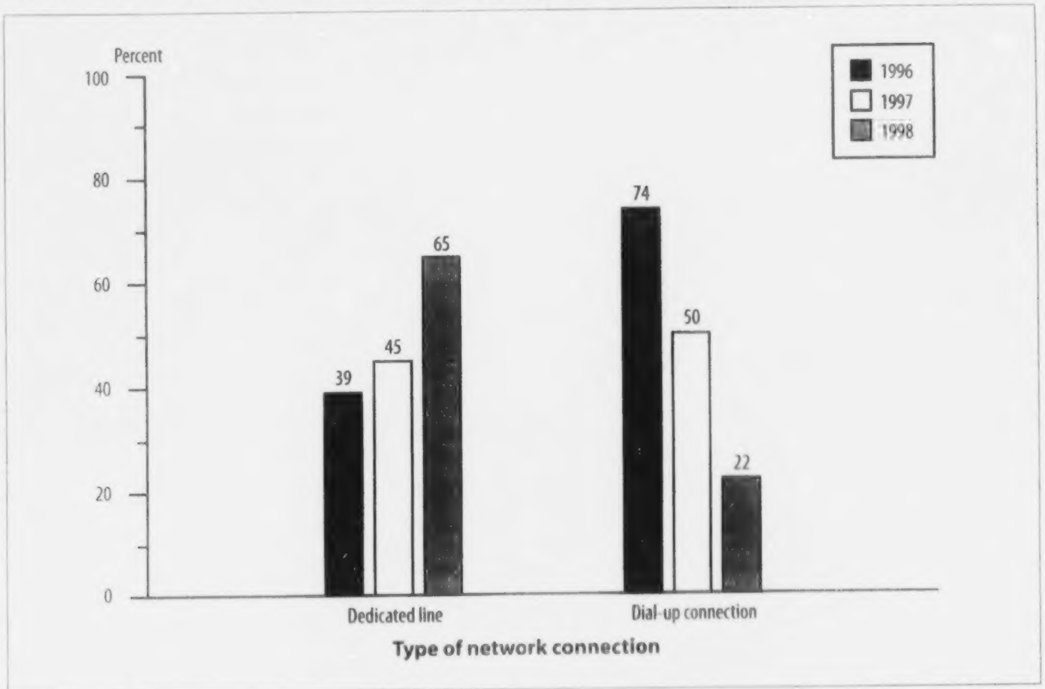
Figure 2.—Percent of public schools with Internet access, by type of network connection: Fall 1996–98



NOTE: Data were also collected for ISDN, cable modem, and wireless connections.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (NCES 97-944); *Internet Access in Public Schools* (NCES 98-031); and data from the Fast Response Survey System, "Survey on Internet Access in U.S. Public Schools, Fall 1998," FRSS 69, 1998.

Conclusion

Differences among public schools with Internet access have decreased in 1998; however, schools with the highest proportion of minority enrollments and schools with the highest proportion of students eligible for free or reduced-price school lunch continue to have fewer instructional rooms with Internet access. And, while the ratio of students per instructional computer is approaching the ratio recommended by the President's Committee of Advisors on Science and Technology, the ratio of students to computer with Internet access is nearly double the recommended student to computer ratio. Public schools have shown a commitment toward securing more efficient means of connecting to the Internet; more schools are connecting to the Internet using dedicated lines than in previous years.

Reference

President's Committee of Advisors on Science and Technology, Panel on Educational Technology. (1997). *Report to the President on the Use of Technology to Strengthen K–12 Education in the United States*. Available: *http://www.whitehouse.gov/WH/EOP/OSTP/NSTC/PCAST/k-12ed.html*

Data sources: The following surveys, conducted through the NCES Fast Response Survey System (FRSS): Survey on Advanced Telecommunications in U.S. Public Schools, K–12 (FRSS 51, 1994); Survey on Advanced Telecommunications in U.S. Public Schools, K–12 (FRSS 57, 1995); Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996 (FRSS 61, 1996); Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997 (FRSS 64, 1997); and Survey on Internet Access in U.S. Public Schools, Fall 1998 (FRSS 69, 1998).

For technical information, see the following reports:

Heaviside, S., Farris, E., and Malitz, G. (1995). *Advanced Telecommunications in U.S. Public Schools, K–12* (NCES 95-731).

Heaviside, S., Farris, E., and Malitz, G. (1996). *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, 1995* (NCES 96-854).

Heaviside, S., Riggins, T., and Farris, E. (1997). *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (NCES 97-944).

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Public School Student, Staff, and Graduate Counts by State: School Year 1997–98

Ghedam Bairu

This article was originally published as a Statistics in Brief report. The universe data are from the NCES Common Core of Data (CCD). Technical notes and definitions from the original report have been omitted.

How many students were enrolled in elementary and secondary public schools in 1997–98? How many staff members were paid to teach, supervise, and provide support services for education? How many students graduated from high school in 1996–97? The information to answer these and other questions is reported from the National Center for Education Statistics (NCES) State Nonfiscal Survey of Public Elementary and Secondary Education, School Year 1997–98.

How Many Students Were Enrolled in Public Elementary and Secondary Schools?

In school year 1997–98, there were 46 million students enrolled in public elementary and secondary schools in the 50 states and the District of Columbia (table 1). Of these students, 25.7 million were in prekindergarten through grade 6, an additional 19.8 million were in grades 7 through 12, and the remaining 0.7 million were ungraded students.*

California had the most public elementary and secondary school students (5,804,000), followed by Texas (3,892,000) and New York (2,862,000). The three lowest student counts were in the District of Columbia (77,000), Wyoming (97,000), and Vermont (106,000).

How Many Teachers Were There?

About 2.7 million full-time-equivalent teachers provided instruction in public elementary and secondary schools in the 1997–98 school year (table 2). Among this group, 1,519,000 were elementary school teachers (including prekindergarten and kindergarten teachers) and 983,000 were secondary school teachers. The remaining 242,000 teachers taught ungraded classes or were not assigned a specific grade.

The ratio of total students to total teachers for the nation was 16.8 students per teacher. These ratios ranged from lows of 13.4 students per teacher in Vermont and 13.5 in Maine to highs of 22.9 in Utah and 21.6 in California. The median student/teacher ratio was 16.3:1; that is, about half of the states had a student/teacher ratio equal to or greater than 16.3:1, and half had a lower ratio. Student/teacher ratio should not be interpreted as average class size since not all teachers are assigned to a class (for example, music and reading teachers in elementary schools).

How Many Staff Supervised or Provided Support Services for Public Education?

In addition to the teachers described previously, about 556,000 teachers' aides directly assisted teachers in providing instruction (table 3). An additional 35,000 instructional coordinators and supervisors helped teachers through curriculum development and inservice training. Support staff for students included 91,000 guidance counselors and 52,000 librarians. This translates to about 508 students for every guidance counselor reported, and 884 students for each librarian. An additional 1,245,000 staff members provided support services for students. This support included food, health, library, maintenance, transportation, security, and other services in the nation's public schools. There were 126,000 school administrators (mostly principals and assistant principals), 51,000 school district administrators, and about 358,000 administrative support staff.

The relative distribution of all staff is illustrated in figure 1. Instructional staff (teachers, instructional aides, and coordinators) made up 63.5 percent of all staff. Another 26 percent of all staff (librarians, counselors, psychologists, and other support staff) provided support services to schools and students. Administrators and administrative support staff made up 10 percent of all education staff. On the average, there were 16 teachers and 13 other staff for each administrator. All of these distributions and ratios vary greatly from state to state.

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*Throughout this Statistics in Brief, the five outlying areas and the Department of Defense Dependents Schools are not included in national totals.

How Many Students Graduated From High School During the 1996–97 School Year?

Some 2,341,000 students received regular high school diplomas in the 50 states and the District of Columbia during the 1996–97 school year and subsequent summer (table 4). An additional 185,000 students received other (alternative) diplomas or high school equivalency certificates (the latter group includes only those who were 19 or younger). National totals for alternative and high school equivalency certificate recipients and other completers represent an undercount due to missing data in some states. Finally, some 29,000 students received some high school completion certificate other than a diploma or an equivalency certificate. (Note that some states grant only regular diplomas and the high school equivalency certificates.)

Data source: The NCES Common Core of Data (CCD), State Nonfiscal Survey, 1993–94, 1996–97, and 1997–98.

For technical information, see the complete Statistics in Brief:

Bairu, G. (1999). *Public School Student, Staff, and Graduate Counts by State: School Year 1997–98* (NCES 1999–327).

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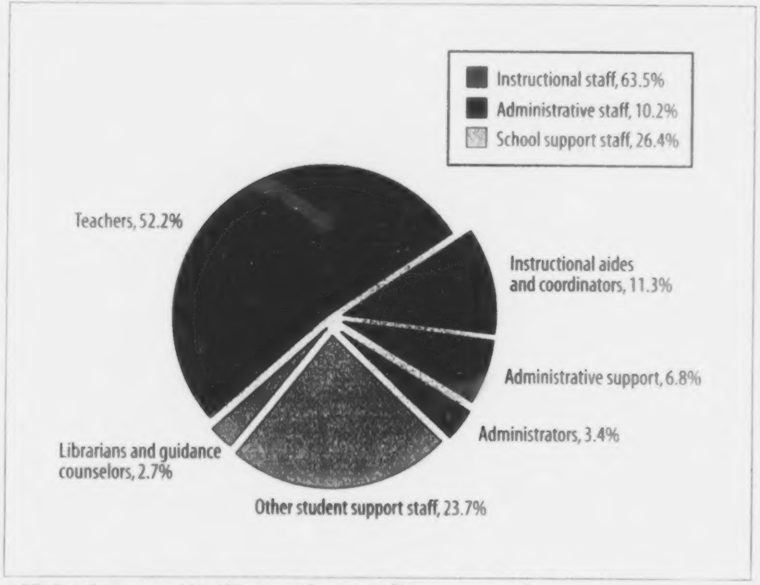
To obtain the Statistics in Brief (NCES 1999–327), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Figure 1.—Distribution of elementary and secondary education staff by category: School year 1997–98



NOTE: Details may not add to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "State Nonfiscal Survey," 1997–98.

Table 1.—Public school student membership, by grade and state: Fall 1997

State	Total student membership	Pre-kindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
United States	[1]46,127,194	[1]694,857	3,503,173	3,754,896	3,689,185	3,597,190	3,507,494	3,457,588
Alabama	[1]749,187	[1]9,866	58,326	63,553	60,682	58,969	57,431	57,360
Alaska	132,123	2,183	10,249	10,596	10,625	10,544	10,473	10,185
Arizona	814,113	4,674	63,857	70,928	68,478	66,045	65,170	63,429
Arkansas	456,497	1,672	35,761	36,984	35,899	35,001	34,067	33,695
California	[1]5,803,734	[1]76,431	463,684	488,429	489,070	463,034	451,069	434,280
Colorado	687,167	12,861	51,408	55,035	54,437	53,710	53,023	53,377
Connecticut	535,164	9,680	42,382	45,440	44,701	44,276	43,175	41,935
Delaware	111,960	572	8,039	9,114	8,707	8,441	8,758	8,405
District of Columbia	77,111	5,156	6,982	7,756	6,972	6,644	5,357	4,850
Florida	2,294,077	54,044	174,874	185,618	186,229	184,144	180,873	177,260
Georgia	1,375,980	29,357	111,081	115,462	114,559	111,495	108,023	106,114
Hawaii	189,887	606	15,473	16,330	16,445	15,562	15,127	14,785
Idaho	244,403	2,109	17,499	18,584	18,648	18,398	18,527	18,238
Illinois	1,998,289	55,835	153,934	161,992	159,328	157,765	146,478	145,916
Indiana	987,483	5,561	73,012	82,792	79,072	77,304	75,328	72,649
Iowa	501,054	4,757	36,486	35,982	36,314	35,521	34,950	34,921
Kansas	468,687	5,373	32,274	35,695	35,631	34,922	35,172	35,387
Kentucky	669,322	22,065	48,324	[1]52,193	[2]51,086	[2]49,965	47,241	47,589
Louisiana	776,813	15,442	60,679	53,503	59,691	57,936	57,485	57,498
Maine	212,526	969	15,543	16,433	16,550	16,596	16,834	16,553
Maryland	830,744	19,739	60,385	67,742	67,998	66,482	64,763	63,554
Massachusetts	949,006	18,226	73,125	79,785	79,534	77,849	75,586	73,697
Michigan	1,702,672	22,423	133,202	137,352	136,096	128,797	123,229	122,669
Minnesota	853,621	8,945	62,126	62,339	64,122	63,628	63,494	63,436
Mississippi	504,792	1,289	39,378	43,764	40,774	38,716	38,266	37,085
Missouri	910,654	16,372	71,235	71,589	70,166	68,980	67,802	67,889
Montana	162,335	[3]484	11,553	12,092	12,030	11,866	12,165	12,417
Nebraska	292,681	4,514	21,436	21,646	22,048	21,342	21,168	21,461
Nevada	296,621	1,902	23,809	26,377	26,083	24,963	23,936	23,476
New Hampshire	201,629	1,577	8,763	17,514	17,087	16,883	16,688	16,802
New Jersey	1,250,276	10,220	92,171	103,003	100,961	98,719	94,806	91,352
New Mexico	331,673	4,131	24,346	26,715	25,996	25,756	25,521	25,887
New York	2,861,823	32,086	206,548	229,133	227,572	219,229	210,379	203,511
North Carolina	1,236,083	8,195	102,951	107,437	104,724	102,937	98,688	96,086
North Dakota	118,572	713	8,373	8,548	8,442	8,640	8,678	8,697
Ohio	1,847,035	20,763	137,371	148,819	143,620	141,821	138,301	137,723
Oklahoma	623,681	2,494	54,203	54,161	47,604	46,659	46,397	46,425
Oregon	541,346	781	38,976	42,742	42,938	42,547	41,710	41,663
Pennsylvania	1,815,151	2,979	129,198	146,168	141,752	139,156	138,585	137,087
Rhode Island	153,321	629	11,397	12,831	12,839	12,382	12,083	11,814
South Carolina	[1]659,256	[1]8,682	46,748	55,479	48,638	53,744	51,992	51,195
South Dakota	142,443	924	10,465	10,265	10,382	10,395	10,375	10,735
Tennessee	[1]893,020	[1]11,760	74,912	77,627	72,040	69,187	67,196	67,462
Texas	3,891,877	135,616	289,683	313,192	307,106	299,984	296,894	296,071
Utah	482,957	3,806	35,310	36,057	35,880	35,045	35,306	34,308
Vermont	105,984	1,222	7,281	7,882	8,063	8,198	8,029	8,116
Virginia	1,110,815	4,036	85,729	90,271	89,801	87,396	83,447	82,557
Washington	991,235	6,671	72,922	77,762	78,135	76,876	75,322	75,660
West Virginia	301,419	4,838	22,282	23,169	22,346	21,877	21,405	21,926
Wisconsin	881,780	19,627	60,932	64,114	64,297	64,031	63,661	65,120
Wyoming	97,115	[4]0	6,496	6,902	6,987	6,833	7,061	7,281
Outlying Areas and DOD Dependents Schools								
DOD Dependents Schools	78,254	1,619	7,843	7,950	8,044	7,608	6,975	6,592
American Samoa	15,214	1,515	1,205	1,218	1,205	1,205	1,152	1,164
Guam	32,444	463	2,765	2,809	2,919	2,761	2,697	2,549
Northern Marianas	9,246	588	566	872	850	781	799	816
Puerto Rico	617,322	358	43,886	51,549	51,266	51,108	50,232	49,743
Virgin Islands	22,136	[4]0	1,518	1,823	1,710	1,595	1,655	1,690

See footnotes on second page of this table.

Table 1.—Public school student membership, by grade and state: Fall 1997—Continued

State	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12	Ungraded
United States	3,492,505	3,519,847	3,415,151	3,818,929	3,376,595	2,972,004	2,673,067	654,713
Alabama	57,154	59,488	58,210	63,707	52,780	47,389	44,272	0
Alaska	10,298	10,542	9,954	10,671	9,561	8,471	7,771	0
Arizona	64,243	64,019	60,138	66,357	58,472	48,676	44,259	5,368
Arkansas	34,451	36,585	36,229	37,038	35,333	31,874	29,204	2,704
California	426,302	426,245	412,604	458,650	423,865	378,819	317,595	93,657
Colorado	54,004	53,406	52,632	56,644	50,972	45,380	39,263	1,015
Connecticut	41,267	40,650	39,089	41,713	36,746	32,753	29,660	1,697
Delaware	8,746	9,085	8,905	10,259	8,807	7,381	6,741	0
District of Columbia	4,713	4,802	4,376	4,913	4,473	3,549	2,961	3,607
Florida	181,704	181,657	173,913	203,561	168,060	133,774	108,366	0
Georgia	106,131	105,222	103,107	121,511	94,881	79,682	69,355	0
Hawaii	14,420	13,755	13,829	16,573	14,074	12,535	10,266	107
Idaho	18,077	19,048	19,696	20,431	19,957	18,171	17,020	0
Illinois	159,902	148,381	145,853	156,022	142,442	130,581	129,084	4,776
Indiana	73,804	75,600	75,621	82,813	75,227	69,188	64,883	4,629
Iowa	36,680	38,136	37,631	40,806	39,679	38,235	36,808	14,148
Kansas	36,449	37,338	36,832	39,397	36,399	33,464	30,922	3,432
Kentucky	48,502	50,740	50,385	57,537	49,963	44,440	40,153	[2]9,139
Louisiana	60,298	61,919	55,957	65,496	54,878	46,065	41,527	18,439
Maine	17,431	17,631	17,203	16,629	15,101	14,020	12,781	2,252
Maryland	62,145	62,200	60,010	66,172	57,711	51,580	46,532	13,731
Massachusetts	72,208	72,275	69,388	72,256	65,793	60,116	54,354	4,814
Michigan	122,917	125,368	119,473	129,251	116,471	102,991	92,690	89,743
Minnesota	65,640	67,466	66,529	68,770	68,472	64,927	63,727	0
Mississippi	37,645	39,982	38,455	41,768	35,246	29,499	26,788	16,137
Missouri	69,551	70,545	68,197	74,724	66,902	60,866	55,812	10,024
Montana	12,867	13,196	13,035	13,753	13,094	12,140	11,301	342
Nebraska	22,128	22,751	23,190	24,559	23,457	22,069	20,912	0
Nevada	23,072	22,643	21,910	22,037	21,344	18,638	15,782	649
New Hampshire	16,480	16,785	15,967	16,336	14,955	13,354	11,656	782
New Jersey	89,004	88,214	83,985	86,192	79,314	72,813	68,008	91,514
New Mexico	25,713	26,003	25,525	29,843	26,201	21,956	18,080	0
New York	201,678	203,038	197,148	245,320	215,097	168,983	146,818	155,283
North Carolina	95,917	96,266	93,033	106,559	87,549	72,987	62,552	202
North Dakota	9,099	9,585	9,555	10,053	9,935	9,439	8,815	0
Ohio	140,445	143,868	138,634	156,863	140,660	130,259	120,051	7,837
Oklahoma	47,820	48,639	48,030	51,060	47,758	41,543	37,568	3,320
Oregon	42,548	42,917	42,466	45,211	42,477	37,452	34,419	2,499
Pennsylvania	139,804	139,877	135,882	151,930	139,180	126,527	117,432	29,594
Rhode Island	11,595	11,735	11,272	12,362	10,971	9,407	8,633	3,371
South Carolina	52,427	52,984	50,775	62,018	48,576	39,422	36,576	0
South Dakota	11,076	11,415	11,370	12,352	11,431	10,578	9,939	741
Tennessee	66,654	67,096	64,518	73,477	63,496	53,805	48,881	14,909
Texas	297,957	303,310	292,648	347,951	270,516	234,021	206,928	0
Utah	35,098	35,634	36,365	37,254	38,787	37,286	35,900	10,921
Vermont	8,237	8,290	8,375	8,827	7,908	7,270	6,831	1,455
Virginia	84,696	85,913	82,753	88,374	78,960	69,767	66,430	30,685
Washington	76,684	77,795	76,664	83,616	78,155	70,242	64,731	0
West Virginia	22,509	23,200	23,002	25,119	24,521	22,607	21,765	853
Wisconsin	66,745	68,580	66,601	75,862	71,522	67,500	63,188	0
Wyoming	7,570	8,028	8,232	8,332	8,466	7,513	7,077	337
Outlying Areas and DOD Dependents Schools								
DOD Dependents Schools	6,034	5,625	5,140	4,683	4,112	3,301	2,728	0
American Samoa	1,065	1,026	1,009	960	946	804	704	36
Guam	2,559	2,281	2,173	3,310	2,321	1,528	1,309	0
Northern Marianas	671	656	585	581	555	426	500	0
Puerto Rico	47,871	51,342	46,126	44,105	45,044	38,276	32,536	13,880
Virgin Islands	1,576	2,110	1,577	2,015	1,539	1,102	1,193	1,033

[1] Data imputed based on current-year (fall 1997) data.

[2] Data disaggregated from reported total.

[3] Montana reports some prekindergarten students as kindergarten students.

[4] Wyoming and the Virgin Islands do not have a prekindergarten program.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "State Nonfiscal Survey," 1997–98.

Table 2.—Public school student/teacher ratio, student membership, and teachers, by level of instruction and state: Fall 1997

State	Total student/ teacher ratio	Total student membership	Total teachers	Pre-kindergarten teachers	Kindergarten teachers	Elementary teachers	Secondary teachers	Teachers of ungraded classes
United States	16.8	[1]46,127,194	[1]2,744,493	[1]27,731	[1]131,936	[1]1,359,272	[1]983,217	242,337
Alabama	16.3	[1]749,187	[1]45,973	[1]510	3,608	21,670	20,185	0
Alaska	17.3	132,123	7,625	31	360	4,465	2,769	0
Arizona	19.8	814,113	41,129	195	1,636	27,895	11,403	0
Arkansas	16.9	456,497	[1]26,932	[1]86	2,008	11,944	12,706	188
California	21.6	[1]5,803,734	[1]268,581	[1]3,951	18,499	153,039	66,388	26,704
Colorado	18.2	687,167	37,840	316	1,278	17,720	18,526	0
Connecticut	14.2	535,164	37,658	150	1,424	20,390	11,067	4,627
Delaware	16.3	111,960	6,850	29	194	3,139	3,488	0
District of Columbia	17.5	77,111	[1]4,399	[1]41	[1]198	[1]2,345	[1]1,815	0
Florida	18.4	2,294,077	124,473	917	6,980	45,586	47,411	23,579
Georgia	16.2	1,375,980	85,005	2,247	5,349	42,447	34,962	0
Hawaii	17.8	189,887	10,653	[2]97	[2]459	[2]5,590	4,463	44
Idaho	18.5	244,403	13,207	113	440	6,197	6,300	157
Illinois	16.8	1,998,289	118,734	1,381	4,654	65,199	30,164	17,336
Indiana	17.2	987,483	57,371	349	2,290	26,515	25,368	2,849
Iowa	15.3	501,054	32,717	462	1,872	17,170	12,088	1,125
Kansas	14.9	468,687	31,527	180	1,123	13,458	13,469	3,297
Kentucky	16.5	669,322	40,488	623	1,195	26,867	11,803	0
Louisiana	16.0	776,813	48,599	403	2,778	30,534	14,280	604
Maine	13.5	212,526	15,700	[2]170	[2]801	[2]9,758	4,971	0
Maryland	17.2	830,744	48,318	587	1,503	22,288	23,940	0
Massachusetts	14.1	949,006	67,170	[2]420	[2]1,984	[2]22,164	33,319	9,283
Michigan	18.8	1,702,672	90,529	959	3,438	34,822	41,117	10,193
Minnesota	16.4	853,621	51,998	95	1,763	25,404	24,709	27
Mississippi	17.1	504,792	29,441	225	1,602	13,129	9,464	5,021
Missouri	15.0	910,654	60,869	964	3,061	26,570	29,535	739
Montana	15.9	162,335	10,228	[2]111	[2]523	[2]6,373	3,221	0
Nebraska	14.5	292,681	20,139	[2]185	[2]873	[2]10,634	8,373	74
Nevada	18.5	296,621	16,053	240	510	7,425	5,752	2,126
New Hampshire	15.6	201,629	12,931	93	271	8,487	4,080	0
New Jersey	13.9	1,250,276	89,671	234	3,172	46,923	26,383	12,959
New Mexico	16.9	331,673	19,647	220	797	10,459	4,644	3,527
New York	15.0	2,861,823	190,874	1,921	10,133	85,374	65,232	28,214
North Carolina	15.9	1,236,083	77,785	681	5,239	41,310	27,697	2,858
North Dakota	14.7	118,572	8,070	90	291	4,626	3,063	0
Ohio	16.7	1,847,035	110,757	1,090	3,909	68,578	36,951	229
Oklahoma	15.5	623,681	40,215	235	1,608	16,824	17,348	4,200
Oregon	20.1	541,346	26,935	40	1,032	13,419	8,210	4,234
Pennsylvania	16.8	1,815,151	108,014	[2]781	[2]3,691	[2]44,940	45,221	13,381
Rhode Island	14.5	153,321	10,598	34	283	4,392	4,385	1,504
South Carolina	15.6	[1]659,256	42,336	461	1,782	26,944	13,149	0
South Dakota	15.3	142,443	9,282	28	288	5,216	2,846	904
Tennessee	16.5	[1]893,020	54,142	168	3,699	34,262	14,610	1,403
Texas	15.3	3,891,877	254,557	4,051	13,157	102,657	87,379	47,313
Utah	22.9	482,957	21,115	134	832	9,092	8,681	2,376
Vermont	13.4	105,984	7,909	65	275	2,805	3,066	1,698
Virginia	14.7	1,110,815	[1]75,524	[1]209	[2]3,575	[2]42,684	29,056	0
Washington	20.2	991,235	49,074	73	2,041	22,703	19,937	4,320
West Virginia	14.4	301,419	20,947	153	1,117	8,997	7,065	3,615
Wisconsin	15.4	881,780	57,227	933	2,135	34,933	17,731	1,495
Wyoming	14.5	97,115	6,677	[3]0	206	2,910	3,427	134
Outlying Areas and DOD Dependents Schools								
DOD Dependents Schools	16.1	78,254	5,227	47	188	2,095	1,976	921
American Samoa	20.0	15,214	762	115	34	389	209	15
Guam	23.8	32,444	1,363	14	129	469	622	129
Northern Marianas	19.1	9,246	483	3	17	261	199	3
Puerto Rico	15.8	617,322	38,953	43	1,275	20,577	14,268	2,790
Virgin Islands	14.2	22,136	1,559	[3]0	70	702	777	10

[1] Data imputed based on current-year (fall 1997) data.

[2] Data disaggregated from reported total.

[3] Wyoming and the Virgin Islands do not have prekindergarten programs.

NOTE: Teacher counts are full-time-equivalency (FTE) counts. Elementary and secondary teacher counts are not directly comparable across states due to differences in the grades included in these designations.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "State Nonfiscal Survey," 1997–98.

Table 3.—Number of staff employed by public elementary and secondary school systems and percentage of total staff, by category and state: Fall 1997

State	Total staff	Teachers		Instructional aides		Instructional coordinators and supervisors		Guidance counselors	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States	[1]5,258,671	[1]2,744,493	52.2	[1]556,435	10.6	[1]34,844	0.7	[1]90,757	1.7
Alabama	[1]85,951	[1]45,973	53.5	7,294	8.5	1,020	1.2	1,718	2.0
Alaska	[1]14,952	7,625	51.0	1,957	13.1	[1]113	0.8	220	1.5
Arizona	80,907	41,129	50.8	10,283	12.7	186	0.2	1,079	1.3
Arkansas	[1]51,272	26,932	52.5	3,837	7.5	163	0.3	1,219	2.4
California	[1]493,837	[1]268,581	54.4	59,381	12.0	5,318	1.1	5,422	1.1
Colorado	72,247	37,840	52.4	6,850	9.5	800	1.1	1,222	1.7
Connecticut	73,529	37,658	51.2	8,881	12.1	409	0.6	1,145	1.6
Delaware	12,554	6,850	54.6	958	7.6	52	0.4	221	1.8
District of Columbia	[1]8,706	[1]4,399	50.5	[1]1,011	11.6	[1]66	0.8	[1]172	2.0
Florida	256,313	124,473	48.6	27,801	10.8	667	0.3	5,026	2.0
Georgia	[1]157,593	85,005	53.9	[1]18,040	11.4	1,276	0.8	2,271	1.4
Hawaii	17,117	10,653	62.2	886	5.2	407	2.4	571	3.3
Idaho	23,100	13,207	57.2	2,237	9.7	226	1.0	558	2.4
Illinois	[1]228,599	118,734	51.9	[1]26,199	11.5	2,053	0.9	2,871	1.3
Indiana	121,748	57,371	47.1	16,839	13.8	1,406	1.2	1,763	1.4
Iowa	64,261	32,717	50.9	6,866	10.7	376	0.6	1,341	2.1
Kansas	59,603	31,527	52.9	5,476	9.2	86	0.1	1,101	1.8
Kentucky	[1]88,996	40,488	45.5	12,858	14.4	420	0.5	1,283	1.4
Louisiana	98,537	48,599	49.3	10,363	10.5	1,079	1.1	2,910	3.0
Maine	30,534	15,700	51.4	4,321	14.2	130	0.4	598	2.0
Maryland	87,367	48,318	55.3	7,332	8.4	697	0.8	1,876	2.1
Massachusetts	121,359	67,170	55.3	14,870	12.3	1,059	0.9	2,229	1.8
Michigan	202,128	90,529	44.8	19,809	9.8	712	0.4	2,968	1.5
Minnesota	97,365	51,998	53.4	13,954	14.3	938	1.0	977	1.0
Mississippi	61,693	29,441	47.7	8,744	14.2	520	0.8	885	1.4
Missouri	107,681	60,869	56.5	8,823	8.2	769	0.7	2,485	2.3
Montana	[1]18,993	10,228	53.9	[1]2,128	11.2	135	0.7	420	2.2
Nebraska	37,851	20,139	53.2	3,764	9.9	249	0.7	752	2.0
Nevada	27,830	16,053	57.7	1,976	7.1	107	0.4	608	2.2
New Hampshire	24,778	12,931	52.2	4,290	17.3	[2]144	0.6	665	2.7
New Jersey	166,796	89,671	53.8	15,644	9.4	1,292	0.8	3,215	1.9
New Mexico	39,920	19,647	49.2	4,794	12.0	566	1.4	676	1.7
New York	374,182	190,874	51.0	31,167	8.3	1,378	0.4	5,559	1.5
North Carolina	[1]149,229	77,785	52.1	24,591	16.5	647	0.4	3,123	2.1
North Dakota	14,862	8,070	54.3	1,636	11.0	78	0.5	262	1.8
Ohio	203,073	110,757	54.5	11,869	5.8	407	0.2	3,267	1.6
Oklahoma	69,294	40,215	58.0	5,349	7.7	150	0.2	1,418	2.0
Oregon	53,094	26,935	50.7	7,099	13.4	302	0.6	1,251	2.4
Pennsylvania	205,642	108,014	52.5	17,508	8.5	1,518	0.7	3,762	1.8
Rhode Island	17,197	10,598	61.6	1,862	10.8	51	0.3	314	1.8
South Carolina	[1]78,951	42,336	53.6	[1]8,643	10.9	448	0.6	1,557	2.0
South Dakota	16,846	9,282	55.1	1,871	11.1	107	0.6	359	2.1
Tennessee	102,349	54,142	52.9	11,139	10.9	[2]814	0.8	1,638	1.6
Texas	492,932	254,557	51.6	48,626	9.9	1,169	0.2	8,720	1.8
Utah	39,630	21,115	53.3	5,571	14.1	527	1.3	673	1.7
Vermont	16,388	7,909	48.3	3,359	20.5	240	1.5	365	2.2
Virginia	[1]142,567	[1]75,524	53.0	12,273	8.6	1,342	0.9	3,269	2.3
Washington	[2]92,338	49,074	53.0	9,469	10.2	[2]668	0.9	1,861	2.0
West Virginia	38,499	20,947	54.4	3,169	8.2	344	0.9	621	1.6
Wisconsin	[1]103,900	57,227	55.1	11,254	10.8	1,104	1.1	1,981	1.9
Wyoming	13,581	6,677	49.2	1,514	11.1	109	0.8	290	2.1
Outlying Areas and DOD Dependents Schools									
DOD Dependents Schools	7,616	5,000	65.7	779	10.2	115	1.5	172	2.3
American Samoa	1,466	728	49.7	107	7.3	27	1.8	29	2.0
Guam	3,367	1,802	53.5	408	12.1	14	0.4	61	1.8
Northern Marianas	1,024	422	41.2	205	20.0	11	1.1	25	2.4
Puerto Rico	69,748	39,328	56.4	—	—	621	0.9	884	1.3
Virgin Islands	3,218	1,622	50.4	326	10.1	19	0.6	84	2.6

See footnotes on second page of this table.

Table 3.— Number of staff employed by public elementary and secondary school systems and percentage of total staff, by category and state: Fall 1997— Continued

State	Librarians		Other student support staff		School administrators		School district administrators		Administrative support staff	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States	[1]52,172	1.0	[1]1,244,633	23.7	[1]126,093	2.4	[1]50,955	1.0	[1]358,289	6.8
Alabama	1,285	1.5	22,322	26.0	2,285	2.7	445	0.5	3,609	4.2
Alaska	145	1.0	[2]2,867	19.2	825	5.5	[2]68	0.5	1,132	7.6
Arizona	754	0.9	18,610	23.0	1,819	2.2	406	0.5	6,641	8.2
Arkansas	963	1.9	13,703	26.7	1,505	2.9	549	1.1	2,401	4.7
California	958	0.2	[2]93,052	18.8	10,870	2.2	2,255	0.5	48,000	9.7
Colorado	718	1.0	15,849	21.9	1,984	2.7	885	1.2	6,099	8.4
Connecticut	713	1.0	17,424	23.7	1,883	2.6	1,084	1.5	4,332	5.9
Delaware	124	1.0	2,957	23.6	430	3.4	90	0.7	872	6.9
District of Columbia	[1]102	1.2	[1]2,043	23.5	[1]236	2.7	[1]103	1.2	[1]574	6.6
Florida	2,599	1.0	62,638	24.4	6,111	2.4	1,636	0.6	25,362	9.9
Georgia	1,989	1.3	[1]33,557	21.3	4,145	2.6	1,077	0.7	[1]10,233	6.5
Hawaii	286	1.7	2,794	16.3	495	2.9	135	0.8	890	5.2
Idaho	191	0.8	4,690	20.3	688	3.0	116	0.5	1,187	5.1
Illinois	1,924	0.8	[1]53,124	23.2	5,341	2.3	3,493	1.5	[1]14,860	6.5
Indiana	1,039	0.9	32,403	26.6	2,867	2.4	920	0.8	7,140	5.9
Iowa	747	1.2	15,591	24.3	1,773	2.8	881	1.4	3,969	6.2
Kansas	994	1.7	14,415	24.2	1,698	2.8	1,272	2.1	3,034	5.1
Kentucky	1,101	1.2	[1]25,767	29.0	1,808	2.0	1,053	1.2	4,218	4.7
Louisiana	1,219	1.2	28,039	28.5	2,536	2.6	292	0.3	3,500	3.6
Maine	237	0.8	[2]6,504	21.3	853	2.8	465	1.5	[2]1,726	5.7
Maryland	1,059	1.2	20,443	23.4	2,810	3.2	722	0.8	4,110	4.7
Massachusetts	676	0.6	22,812	18.8	2,146	1.8	1,035	0.9	9,362	7.7
Michigan	1,565	0.8	69,111	34.2	5,413	2.7	2,066	1.0	9,955	4.9
Minnesota	994	1.0	18,693	19.2	2,190	2.2	1,163	1.2	6,458	6.6
Mississippi	887	1.4	15,353	24.9	1,557	2.5	930	1.5	3,376	5.5
Missouri	1,472	1.4	[2]22,829	21.2	2,762	2.6	1,095	1.0	[2]6,577	6.1
Montana	363	1.9	[1]3,816	20.1	532	2.8	164	0.9	[1]1,207	6.4
Nebraska	560	1.5	8,957	23.7	948	2.5	548	1.4	1,934	5.1
Nevada	267	1.0	6,136	22.0	793	2.8	205	0.7	1,685	6.1
New Hampshire	269	1.1	4,579	18.5	[2]503	2.0	353	1.4	1,044	4.2
New Jersey	1,766	1.1	34,588	20.7	4,343	2.6	1,661	1.0	14,616	8.8
New Mexico	258	0.6	9,237	23.1	884	2.2	587	1.5	3,271	8.2
New York	3,176	0.8	101,852	27.2	7,025	1.9	2,762	0.7	30,389	8.1
North Carolina	2,237	1.5	[1]27,397	18.4	4,144	2.8	1,390	0.9	7,915	5.3
North Dakota	195	1.3	3,277	22.0	411	2.8	445	3.0	488	3.3
Ohio	1,673	0.8	47,258	23.3	1,052	0.5	5,540	2.7	21,250	10.5
Oklahoma	888	1.3	14,096	20.3	1,949	2.8	733	1.1	4,496	6.5
Oregon	569	1.1	10,294	19.4	1,599	3.0	727	1.4	4,318	8.1
Pennsylvania	2,194	1.1	51,693	25.1	4,005	1.9	1,365	0.7	15,583	7.6
Rhode Island	67	0.4	2,629	15.3	375	2.2	140	0.8	1,161	6.8
South Carolina	1,095	1.4	[1]17,468	22.1	2,254	2.9	247	0.3	[1]4,903	6.2
South Dakota	208	1.2	3,257	19.3	566	3.4	339	2.0	857	5.1
Tennessee	1,445	1.4	[2]20,585	20.1	4,264	4.2	1,769	1.7	[2]6,553	6.4
Texas	4,357	0.9	142,726	29.0	12,039	2.4	2,661	0.5	18,077	3.7
Utah	298	0.8	7,944	20.0	980	2.5	107	0.3	2,415	6.1
Vermont	220	1.3	2,945	18.0	403	2.5	145	0.9	802	4.9
Virginia	2,079	1.5	32,770	23.0	3,509	2.5	2,440	1.7	9,361	6.6
Washington	1,298	1.4	[1]19,998	21.6	2,602	2.8	1,082	1.2	6,286	6.8
West Virginia	355	0.9	9,453	24.6	1,071	2.8	322	0.8	2,217	5.8
Wisconsin	1,458	1.4	[1]20,578	19.8	2,457	2.4	876	0.8	6,965	6.7
Wyoming	136	1.0	3,510	25.8	355	2.6	111	0.8	879	6.5
Outlying Areas and DOD Dependents Schools										
DOD Dependents Schools	152	2.0	236	3.1	295	3.9	84	1.1	783	10.3
American Samoa	7	0.5	357	24.4	68	4.6	33	2.3	110	7.5
Guam	27	0.8	741	22.0	40	1.2	13	0.4	261	7.8
Northern Marianas	2	0.2	172	16.8	28	2.7	15	1.5	144	14.1
Puerto Rico	900	1.3	21,158	30.3	1,335	1.9	674	1.0	4,848	7.0
Virgin Islands	44	1.4	711	22.1	88	2.7	71	2.2	253	7.9

— Data missing or not applicable.

[1] Data imputed based on current-year (fall 1997) data.

[2] Data disaggregated from reported total.

NOTE: All staff counts are full-time-equivalency (FTE) counts.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "State Nonfiscal Survey," 1997–98.

Table 4.—Number of public school graduates, 12th-grade student membership, and 9th-grade student membership 3 years earlier, by state: School year 1996–97

State	Regular high school graduates 1996–97	Other diploma recipients 1996–97	12th-grade membership 1996–97	9th-grade membership 1993–94	High school equivalency recipients 1996–97*	Other high school completers 1996–97
United States	2,341,468	57,264	2,586,448	3,486,958	128,148	28,877
Alabama	35,611	—	42,510	62,141	2,839	3,605
Alaska	6,133	—	7,370	9,608	990	42
Arizona	34,082	—	42,041	54,878	—	113
Arkansas	25,146	—	27,613	36,045	4,243	253
California	269,071	42,747	298,669	406,551	5,378	—
Colorado	34,231	—	37,179	47,344	—	553
Connecticut	27,009	20	28,882	36,481	1,412	—
Delaware	5,623	330	6,447	8,930	197	58
District of Columbia	2,853	—	3,042	5,003	827	—
Florida	92,430	2,652	105,469	164,978	17,401	3,167
Georgia	57,284	1,712	65,527	107,625	0	2,008
Hawaii	8,895	34	10,466	14,219	—	812
Idaho	15,380	27	17,075	19,537	227	32
Illinois	110,170	—	123,783	143,950	—	—
Indiana	57,477	0	62,923	81,632	1,596	440
Iowa	32,735	251	35,650	38,637	2,703	83
Kansas	26,648	—	29,244	35,955	—	—
Kentucky	36,941	—	38,460	54,502	—	—
Louisiana	36,495	—	41,759	66,376	3,443	918
Maine	11,827	192	12,851	16,630	327	8
Maryland	42,856	—	44,232	60,213	—	509
Massachusetts	49,008	—	52,569	64,643	—	—
Michigan	87,457	2,238	95,028	126,933	825	533
Minnesota*	48,193	—	60,413	62,353	6,535	—
Mississippi	23,388	0	25,711	41,660	—	2,069
Missouri	50,354	—	54,488	71,288	4,878	—
Montana	10,322	—	11,018	12,737	1,367	—
Nebraska	18,601	35	19,786	22,627	453	94
Nevada	11,299	1,126	15,316	17,014	3,931	222
New Hampshire	9,581	—	11,158	14,039	1,616	—
New Jersey	70,028	—	67,460	81,629	—	—
New Mexico	15,700	—	17,073	27,115	2,397	217
New York	137,176	3,685	146,738	225,243	—	280
North Carolina	57,886	—	61,593	94,369	6,420	1,439
North Dakota	8,025	—	8,686	9,230	481	—
Ohio	105,424	—	117,161	151,241	6,325	0
Oklahoma	35,948	—	36,113	46,597	11,364	0
Oregon	27,720	0	34,794	41,129	4,359	3,636
Pennsylvania	108,817	—	114,183	143,719	7,981	—
Rhode Island	7,840	10	8,428	11,060	680	8
South Carolina	30,829	—	35,546	58,795	2,160	2,071
South Dakota	9,126	121	9,552	11,276	—	19
Tennessee	39,866	—	50,332	71,363	5,772	3,667
Texas	181,794	—	195,075	308,461	3,282	—
Utah	29,007	1,746	34,795	37,270	1,750	279
Vermont	6,096	85	6,622	7,515	0	41
Virginia	60,587	—	64,497	80,277	—	1,671
Washington	51,484	125	62,235	72,322	4,691	—
West Virginia	19,502	71	21,215	26,196	1,697	0
Wisconsin	55,189	—	60,542	69,407	7,601	—
Wyoming	6,324	57	7,129	8,215	—	30
Outlying Areas and DOD Dependents Schools						
DOD Dependents Schools	2,731	—	2,860	—	—	0
American Samoa	710	0	739	907	10	7
Guam	1,103	—	1,258	2,964	0	—
Northern Marianas	309	0	363	480	—	0
Puerto Rico	29,692	14,695	32,361	46,689	11,768	—
Virgin Islands	937	139	1,063	1,801	102	—

— Data missing or not applicable.

*Includes recipients age 19 or younger, except in Minnesota where they are age 20 or younger.

NOTE: National totals for some items may be undercounts due to missing data in some states. Regular high school graduates may include students not included in 12th-grade membership.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "State Nonfiscal Survey," 1993–94 and 1996–97.

Early Estimates of Public Elementary and Secondary Education Statistics: School Year 1998–99

Lena M. McDowell

This article was originally published as an Early Estimates report. The universe data are from the NCES Common Core of Data (CCD). Technical notes and definitions from the original report have been omitted.

The Early Estimates System

The early estimates system is designed to allow the National Center for Education Statistics (NCES) to publish selected key statistics during the school year in which they are reported. The source of universe statistical information about public elementary and secondary education is the Common Core of Data (CCD)—data collected annually by NCES from state education agencies. The estimates included in this report were reported in December 1998 for the 1998–99 school year.*

In early October 1998, survey forms were sent out to each state education agency. States were asked to complete the form and return it by mail or facsimile (fax). Those states that had not responded by mid-November were contacted by telephone. All data were checked for reasonableness against prior years' reports, and follow-up calls were made to resolve any questions. When states did not supply a data item, NCES estimated a value. These values are footnoted. If one or more states required an estimated number, then the national total for that item is marked as estimated. Any early estimate that indicated a change of greater than 10 percentage points more or less than the national growth rate was replaced with an adjusted early estimate.

Forty-five states and four of the outlying areas participated in the 1998–99 public school Early Estimates Survey. The estimates reported here were provided by state education agencies and represent the best information on public elementary and secondary schools available to states at this stage of the school year. They are, however, subject to revision. All estimates for the five nonreporting states, the District of Columbia, and one outlying area were calculated by NCES. (New Jersey, Ohio, Virginia, and Puerto Rico did not return the survey. Arizona, District of Columbia, and Missouri survey forms were received after the cut-off date.) NCES also estimated missing data items for a number of reporting states.

The tables in this publication include three kinds of data for the different years. "Reported" data are previously published figures. "Preliminary" data have not been published previously by NCES; for these, data collection is complete, and processing and data adjustments are through all but the final stage of review. "Estimated" data are those for the current (1998–99) school year.

Estimated data for the current school year are of three types: estimates derived by the states for NCES (most of the data are of this type); preliminary actual counts reported by individual states; and estimated values developed by NCES using a combination of state-specific and national data.

Highlights

The estimates in this publication are key statistics reported during the 1998–99 school year. They include the number of students in membership, teachers, and high school graduates for public elementary and secondary schools, and total revenues and expenditures for the operation of public elementary and secondary schools. Highlights of these statistics include the following:

- There were approximately 46.3 million students in the nation's public elementary and secondary schools in fall 1998, compared with 46.1 million in fall 1997. Student membership has increased by 2.2 million since fall 1994 (table 1).
- Public school students were taught by an estimated 2.8 million teachers in school year 1998–99 (table 2).
- The student membership and teacher count data yield a pupil-to-teacher ratio of 16.6 for grade levels prekindergarten through 12 for public schools in school year 1998–99 (table 7).
- An estimated 2.4 million public school students graduated from high school in the 1997–98 school year. In the 1998–99 school year, 2.5 million students are expected to graduate from high school (table 3).

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*For other CCD surveys, in contrast, most nonfiscal data for school year 1998–99 are reported to NCES from March 1999 through September 1999, after which they undergo NCES and state editing and are adjusted for missing data. High school graduate and fiscal data are reported a year later than student and teacher data.

- Revenues for public elementary and secondary education in fiscal year 1998 are estimated to be $321.1 billion (table 4), and they are expected to rise to approximately $342.1 billion in FY 1999. The per-pupil expenditure for public education is anticipated to be $6,407 per student in membership for the 1998–99 school year (table 7).

Data source: The NCES Common Core of Data, 1998–99 Early Estimates Survey.

For technical information, see the complete report:

McDowell, L.M. (1999). *Early Estimates of Public Elementary and Secondary Education Statistics: School Year 1998–99* (NCES 1999–347).

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To obtain the complete report (NCES 1999–347), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

Table 1.—Membership in public elementary and secondary schools, by state, for grades prekindergarten through 12: Fall 1994 to fall 1998

State	Reported fall 1994	Reported fall 1995	Reported fall 1996	Preliminary fall 1997	Estimated fall 1998
United States	[2]44,111,482	[2]44,840,481	[2]45,592,213	[2]46,127,186	[1]46,349,803
Alabama	[2]736,531	[2]746,149	[2]748,156	[2]749,187	758,816
Alaska	127,057	127,618	129,919	132,123	134,374
Arizona	737,424	743,566	799,250	814,113	[1]829,252
Arkansas	447,565	453,257	457,349	456,497	[1]455,647
California	[2]5,407,475	[2]5,536,406	[2]5,687,901	[2]5,803,734	5,828,938
Colorado	640,521	656,279	673,438	687,167	[3]699,135
Connecticut	506,824	517,935	527,129	535,164	544,690
Delaware	106,813	108,461	110,549	111,960	113,167
District of Columbia	80,450	79,802	78,648	77,111	[3]71,889
Florida	2,111,188	2,176,222	2,242,212	2,294,077	[3]2,335,124
Georgia	1,270,948	1,311,126	1,346,761	1,375,980	1,401,291
Hawaii	183,795	187,180	187,653	189,887	[3]187,395
Idaho	240,448	243,097	245,252	244,403	245,100
Illinois	1,916,172	1,943,623	1,973,040	1,998,289	2,022,108
Indiana	969,022	977,263	983,415	987,483	989,134
Iowa	500,440	502,343	502,941	501,054	502,571
Kansas	460,838	463,008	466,293	468,687	469,850
Kentucky	657,642	659,821	656,089	669,322	646,092
Louisiana	797,933	797,366	793,296	776,813	753,722
Maine	212,601	213,569	213,593	212,526	[3]219,741
Maryland	790,938	805,544	818,583	830,744	837,250
Massachusetts	893,727	915,007	933,898	949,006	[1]964,358
Michigan	1,614,784	1,641,456	1,684,386	[2]1,702,672	1,692,700
Minnesota	821,693	835,166	847,204	853,621	857,900
Mississippi	505,962	506,272	503,967	504,792	502,382
Missouri	878,541	889,881	900,042	910,654	[1]921,391
Montana	164,341	165,547	164,627	162,335	161,023
Nebraska	287,100	289,744	291,967	292,681	291,010
Nevada	250,747	265,041	282,131	296,621	[3]311,063
New Hampshire	189,319	194,171	198,308	201,629	[3]194,512
New Jersey	1,174,206	1,197,381	[1]1,208,179	1,250,276	[1]1,293,840
New Mexico	327,248	329,640	332,632	331,673	[3]328,753
New York	2,766,208	2,813,230	2,843,131	2,861,823	2,852,000
North Carolina	1,156,767	1,183,090	1,210,108	1,236,083	[3]1,245,608
North Dakota	119,288	119,100	120,123	118,572	[3]113,929
Ohio	1,814,290	1,836,015	1,844,389	1,847,035	[1]1,849,685
Oklahoma	609,718	616,393	620,695	623,673	626,674
Oregon	521,945	527,914	537,854	541,346	[3]543,176
Pennsylvania	1,764,946	1,787,533	1,804,256	1,815,151	1,818,090
Rhode Island	147,487	149,799	151,324	153,321	154,485
South Carolina	[2]648,725	[2]645,586	[2]653,011	[2]659,256	644,150
South Dakota	143,482	144,685	143,331	142,443	[1]141,561
Tennessee	[2]881,425	[2]893,770	[2]905,089	[2]893,020	908,885
Texas	3,677,171	3,748,167	3,828,975	3,891,877	3,900,488
Utah	474,675	477,121	481,812	482,957	477,061
Vermont	104,533	105,565	106,341	105,984	105,442
Virginia	1,060,809	1,079,854	1,096,093	1,110,815	[1]1,125,735
Washington	938,314	956,572	974,504	991,235	[3]999,628
West Virginia	310,511	307,112	304,052	301,419	296,332
Wisconsin	860,581	870,175	879,259	881,780	888,245
Wyoming	100,314	99,859	99,058	97,115	[3]94,411
Outlying areas					
American Samoa	14,445	14,576	14,766	15,214	[3]15,666
Guam	32,185	32,960	33,393	32,444	[3]32,821
Northern Marianas	8,429	8,809	9,041	9,246	[3]9,498
Puerto Rico	621,121	627,620	618,861	617,322	[1]615,787
Virgin Islands	23,126	22,737	22,385	22,136	21,983

[1] Data imputed by NCES based on previous year's data.

[2] Data include an imputation by NCES for prekindergarten students, based on current-year data.

[3] Actual count reported by state.

NOTE: All fall 1998 data are state estimates, except where noted. Estimates are as of December 1998. School year 1996–97 data are imputed for New Jersey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates Survey," 1998–99, and "Public School Universe Survey," 1994–95 through 1996–97.

Table 2.—Number of teachers in public elementary and secondary schools, by state, for grades prekindergarten through 12: School years 1994–95 to 1998–99

State	Reported 1994–95	Reported 1995–96	Reported 1996–97	Preliminary 1997–98	Estimated 1998–99[4]
United States	[2]2,551,875	[2]2,598,220	[2]2,666,034	[2]2,744,466	[1]2,787,154
Alabama	[2]42,791	44,056	[2]45,040	[2]45,973	46,196
Alaska	7,205	7,379	7,418	7,625	7,858
Arizona	38,132	38,017	40,521	41,129	[1]42,032
Arkansas	26,181	26,449	[2]26,680	[2]26,932	[1]26,971
California	[2]225,016	[2]230,849	[2]248,857	[2]268,581	[1]270,639
Colorado	34,894	35,388	36,398	37,840	38,975
Connecticut	35,316	36,070	36,551	37,658	40,754
Delaware	6,416	6,463	6,642	6,850	6,701
District of Columbia	6,110	5,305	5,288	[2]4,399	[1]4,115
Florida	110,674	114,938	120,471	124,473	[3]128,791
Georgia	77,914	79,480	79,091	85,005	87,555
Hawaii	10,240	10,500	10,576	10,653	10,550
Idaho	12,582	12,784	13,078	13,207	14,100
Illinois	110,830	113,538	116,274	118,734	122,775
Indiana	55,496	55,821	56,708	57,371	57,927
Iowa	31,726	32,318	32,593	32,717	33,686
Kansas	30,579	30,729	30,875	31,527	31,493
Kentucky	38,784	39,120	39,331	40,488	40,381
Louisiana	47,599	46,980	47,334	48,599	48,928
Maine	15,404	15,392	15,551	15,700	16,877
Maryland	46,565	47,819	47,943	48,318	49,490
Massachusetts	60,489	62,710	64,574	67,170	[1]68,482
Michigan	80,522	83,179	88,051	90,529	90,200
Minnesota	46,958	46,971	48,245	51,998	52,700
Mississippi	28,866	28,997	29,293	29,441	29,840
Missouri	56,606	57,951	59,436	60,869	[1]61,790
Montana	10,079	10,076	10,268	10,228	10,200
Nebraska	19,774	20,028	20,174	20,139	[2]20,237
Nevada	13,414	13,878	14,805	16,053	16,835
New Hampshire	12,109	12,346	12,692	12,931	12,469
New Jersey	85,258	86,706	[1]88,903	89,671	[1]93,102
New Mexico	19,025	19,398	19,971	19,647	19,786
New York	182,273	181,559	185,104	190,874	201,000
North Carolina	71,592	73,201	75,239	77,785	77,486
North Dakota	7,796	7,501	7,892	8,070	[3]7,840
Ohio	109,085	107,347	108,602	110,757	[1]111,283
Oklahoma	39,406	39,364	39,491	40,188	40,943
Oregon	26,208	26,680	26,757	26,935	[3]27,289
Pennsylvania	102,988	104,921	106,432	108,014	108,350
Rhode Island	10,066	10,482	10,656	10,598	10,704
South Carolina	39,437	39,922	41,463	42,336	42,120
South Dakota	9,985	9,641	9,625	9,282	9,275
Tennessee	47,406	53,403	54,790	54,142	53,119
Texas	234,213	240,371	247,650	254,557	254,811
Utah	19,524	20,039	19,734	21,115	21,000
Vermont	7,566	7,676	7,751	7,909	8,069
Virginia	[2]72,505	[2]74,731	[2]74,523	[2]75,524	[1]76,791
Washington	46,439	46,907	48,307	49,074	49,316
West Virginia	21,024	21,073	20,888	20,947	20,856
Wisconsin	54,054	55,033	54,769	57,227	[1]57,837
Wyoming	6,754	6,734	6,729	6,677	6,630
Outlying areas					
American Samoa	698	728	734	762	[1]787
Guam	1,826	1,802	1,552	1,363	[3]1,383
Northern Marianas	406	422	441	483	[3]496
Puerto Rico	39,933	39,328	39,743	38,953	[1]38,985
Virgin Islands	1,528	1,622	1,580	1,559	1,556

[1] Data imputed by NCES based on previous year's data.

[2] Data include an imputation by NCES for prekindergarten teachers based on current-year data, except in the District of Columbia, where total teacher count for school year 1997–98 was imputed.

[3] Actual count reported by state.

[4] For Wisconsin and American Samoa, the school year 1998–99 values originally published in this report have been replaced by imputed values.

NOTE: All school year 1998–99 data are state estimates, except where noted. Estimates are as of December 1998. School year 1996–97 data are imputed for New Jersey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates Survey," 1998–99, and "Public School Universe Survey," 1994–95 through 1996–97.

Table 3.—Number of public high school graduates, by state: School years 1994–95 to 1998–99

State	Reported 1994–95	Reported 1995–96	Preliminary 1996–97	Estimated 1997–98	Estimated 1998–99
United States	2,273,541	[1]2,281,317	2,341,468	[1]2,430,664	[1]2,500,312
Alabama	36,268	35,043	35,611	[2]38,018	35,820
Alaska	5,765	5,945	6,133	6,416	6,450
Arizona	30,989	30,008	34,082	[1]35,620	[1]36,556
Arkansas	24,636	25,094	25,146	[1]25,753	[1]25,898
California	255,200	259,071	269,071	269,071	297,533
Colorado	32,409	32,608	34,231	[2]35,794	37,390
Connecticut	26,445	26,319	27,009	29,889	33,382
Delaware	5,234	5,609	5,623	[2]6,107	6,701
District of Columbia	2,974	2,696	2,853	[2]2,777	[1]2,608
Florida	89,827	89,242	92,430	[2]95,514	100,806
Georgia	56,660	56,271	57,284	63,717	65,343
Hawaii	9,407	9,387	8,895	[1]9,235	9,989
Idaho	14,198	14,667	15,380	[2]15,512	15,600
Illinois	105,164	110,486	110,170	114,885	116,145
Indiana	56,058	56,368	57,477	59,268	58,837
Iowa	31,268	31,689	32,735	33,712	34,718
Kansas	26,125	25,786	26,648	28,214	28,996
Kentucky	37,626	36,641	36,941	38,696	38,077
Louisiana	36,480	36,467	36,495	38,030	[1]37,178
Maine	11,501	11,795	11,827	[2]12,610	12,700
Maryland	41,387	41,785	42,856	[2]45,033	46,750
Massachusetts	47,679	47,993	49,008	[1]51,098	[1]52,316
Michigan	84,628	85,530	87,457	92,000	95,500
Minnesota	49,354	50,481	48,193	[2]54,721	56,950
Mississippi	23,837	23,032	23,388	24,477	22,828
Missouri	48,862	48,870	50,354	[1]52,275	[1]53,289
Montana	10,134	10,139	10,322	10,609	10,859
Nebraska	17,969	18,014	18,601	19,672	[1]19,707
Nevada	10,038	10,374	11,299	[2]11,975	11,373
New Hampshire	10,145	10,094	9,581	9,736	9,775
New Jersey	67,403	[1]67,516	70,028	[1]74,355	[1]77,526
New Mexico	14,928	15,402	15,700	[2]16,529	16,921
New York	132,401	135,569	137,176	139,500	140,900
North Carolina	59,540	57,014	57,886	[2]59,049	60,586
North Dakota	7,817	8,027	8,025	[2]8,585	8,242
Ohio	109,418	103,435	105,424	[1]108,325	[1]109,297
Oklahoma	33,319	33,060	35,948	33,577	33,577
Oregon	26,713	26,570	27,720	[2]27,820	27,529
Pennsylvania	104,146	105,981	108,817	112,260	113,230
Rhode Island	7,826	7,689	7,840	8,075	7,161
South Carolina	30,680	30,313	30,829	33,500	34,100
South Dakota	8,355	8,532	9,126	9,484	9,496
Tennessee	43,556	43,792	39,866	[2]43,533	47,540
Texas	170,322	171,844	181,794	186,212	191,942
Utah	27,670	26,293	29,007	[2]31,416	32,000
Vermont	5,871	5,870	6,096	[2]6,096	6,334
Virginia	58,260	58,166	60,587	[1]63,000	[1]64,327
Washington	49,294	49,862	51,484	54,568	55,492
West Virginia	20,131	20,335	19,502	[2]20,127	19,742
Wisconsin	51,735	52,651	55,189	57,878	57,982
Wyoming	5,889	5,892	6,324	[2]6,341	6,314
Outlying areas					
American Samoa	695	719	710	[2]674	745
Guam	987	987	1,103	[2]1,165	1,196
Northern Marianas	319	325	309	[2]374	[1]336
Puerto Rico	29,747	29,499	26,692	[1]30,390	[1]30,542
Virgin Islands	995	713	937	[2]1,069	[1]951

[1] Data imputed by NCES based on previous year's data.

[2] Actual count reported by state.

NOTE: All school year 1997–98 and 1998–99 data are state estimates, except where noted. Estimates are as of December 1998. School year 1995–96 data are imputed for New Jersey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates Survey," 1998–99, and "Agency Universe Survey," 1995–96 through 1997–98.

Table 4.—Revenues for public elementary and secondary education, by state, for grades prekindergarten through 12: Fiscal years 1995 to 1999 (School years 1994–95 to 1998–99)

(In thousands of dollars)

State	Reported FY 95	Reported FY 96	Preliminary FY 97	Estimated FY 98	Estimated FY 99
United States	[2]$273,149,449	[2]$287,702,846	[1]$305,045,833	[1]$321,088,672	[1]$342,122.322
Alabama	3,541,876	3,771,940	3,955,039	[1]4,118,889	[1]4,440,327
Alaska	1,207,000	1,183,127	1,219,017	1,255,588	1,293,255
Arizona	3,783,285	4,151,421	4,400,591	[1]4,661,699	[1]5,053,997
Arkansas	2,175,109	2,204,845	2,371,834	[1]2,462,099	[1]2,615,679
California	28,891,301	30,858,564	34,477,895	36,891,347	41,133,852
Colorado	3,679,162	3,804,992	4,045,015	4,287,716	4,557,893
Connecticut	[2]4,431,603	[2]4,786,247	[2]4,899,851	5,101,000	5,568,000
Delaware	745,036	822,226	878,326	983,075	978,302
District of Columbia	701,300	675,409	711,504	[1]725,500	[1]719,900
Florida	12,805,853	13,214,948	13,861,434	[1]14,749,274	[1]15,979,428
Georgia	6,965,472	7,627,823	8,129,250	[1]8,637,802	10,056,281
Hawaii	1,177,915	1,201,888	1,215,924	1,234,163	1,252,676
Idaho	1,088,596	1,179,927	1,245,135	1,421,900	1,547,300
Illinois	12,016,320	12,290,140	13,161,954	13,556,813	13,963,518
Indiana	6,362,528	6,191,534	7,638,406	[1]7,976,763	[1]8,504,345
Iowa	2,881,176	3,033,687	3,167,763	3,310,313	3,449,346
Kansas	2,883,345	2,948,036	3,040,600	3,131,818	3,225,772
Kentucky	3,240,926	3,492,890	3,794,129	4,047,188	4,181,790
Louisiana	[2]3,837,863	[2]3,934,998	[2]4,154,494	4,442,982	4,618,036
Maine	1,400,439	1,451,987	1,499,504	1,551,986	1,614,066
Maryland	5,559,604	5,695,850	6,042,059	6,065,605	6,600,598
Massachusetts	6,549,468	6,772,855	7,229,486	7,433,136	7,825,606
Michigan	11,925,311	12,698,697	13,437,615	13,664,711	13,895,645
Minnesota	5,606,567	5,939,765	6,109,916	6,397,456	6,718,852
Mississippi	2,099,795	2,225,798	2,259,053	[2]2,344,478	2,461,702
Missouri	4,891,384	5,263,003	5,571,655	[1]5,862,813	[1]6,313,720
Montana	915,392	941,538	991,653	1,041,000	1,051,000
Nebraska	1,797,785	1,876,494	1,954,789	2,017,343	2,109,535
Nevada	1,370,529	1,554,888	1,705,232	1,836,068	1,968,173
New Hampshire	1,149,673	1,217,104	1,282,509	1,407,523	1,472,322
New Jersey	11,485,382	11,882,657	12,376,750	[1]13,320,251	[1]14,671,538
New Mexico	1,695,358	1,783,804	1,829,725	[2]1,903,795	2,067,234
New York	24,889,904	25,849,431	26,564,743	27,627,333	28,732,426
North Carolina	5,940,519	6,154,971	6,515,608	6,581,368	6,976,250
North Dakota	592,329	618,322	642,984	[2]620,268	[1]634,337
Ohio	11,024,539	11,794,089	12,587,117	[1]13,109,316	[1]13,973,052
Oklahoma	2,767,709	2,856,688	3,251,302	[2]3,251,302	3,252,928
Oregon	3,294,014	3,366,831	3,472,609	3,504,000	3,602,000
Pennsylvania	13,271,164	14,047,905	14,441,126	15,100,000	15,900,000
Rhode Island	1,091,960	1,138,171	1,193,754	1,177,483	1,244,599
South Carolina	3,450,203	3,697,232	3,889,383	4,103,299	4,234,605
South Dakota	691,685	717,005	747,324	792,065	831,957
Tennessee	3,908,306	4,142,148	4,411,971	[1]4,527,242	[1]4,904,222
Texas	19,678,883	21,689,792	22,372,808	25,293,846	26,897,359
Utah	1,940,247	2,066,218	2,198,285	2,228,208	2,261,631
Vermont	753,905	773,448	812,166	832,272	[1]881,307
Virginia	[2]6,456,381	[2]6,826,448	[2]7,204,511	[1]7,593,290	[1]8,190,548
Washington	5,976,441	6,327,993	6,642,158	[2]6,961,604	7,254,975
West Virginia	1,940,425	1,990,094	2,082,049	2,258,080	2,330,339
Wisconsin	5,985,761	6,304,318	6,701,115	6,983,016	7,360,099
Wyoming	632,720	662,660	656,713	[2]702,585	750,000
Outlying areas					
American Samoa	45,151	45,987	47,430	51,550	54,287
Guam	171,866	171,464	168,835	166,000	[1]178,737
Northern Marianas	44,122	44,418	56,010	[2]58,300	[1]63,743
Puerto Rico	1,641,580	1,821,858	1,832,790	[1]1,901,352	[1]2,018,690
Virgin Islands	142,961	142,016	141,786	[2]142,620	142,620

[1] Data imputed by NCES based on previous year's data.

[2] Data include imputations by NCES for a few specific local revenues, based on current-year data.

NOTE: All FY 1998 and FY 1999 data are state estimates, except where noted. Estimates are as of December 1998. Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates Survey," 1998–99, and "National Public Education Financial Survey," 1994–95 through 1996–97.

Table 5.—Current expenditures for public elementary and secondary education, by state, for grades prekindergarten through 12: Fiscal years 1995 to 1999 (School years 1994–95 to 1998–99)

(In thousands of dollars)

State	Reported FY 1995	Reported FY 1996	Preliminary FY 1997	Estimated FY 1998	Estimated FY 1999
United States	[2]$243,877,582	[2]$255,079,738	[2]$270,100,789	[1]$284,506,269	[1]$296,975,536
Alabama	3,026,287	3,240,364	3,436,406	[1]3,581,323	[1]3,631,808
Alaska	1,020,675	1,045,022	1,069,379	1,101,461	1,156,534
Arizona	3,144,540	3,327,969	3,527,473	[1]3,739,441	[1]3,813,659
Arkansas	1,873,595	1,994,748	2,074,113	2,095,350	[1]2,094,015
California	25,949,033	27,334,639	29,909,168	32,002,810	34,132,515
Colorado	3,232,976	3,360,529	3,577,211	3,792,596	4,031,530
Connecticut	[2]4,247,328	[2]4,366,123	[2]4,522,717	4,704,000	5,135,000
Delaware	694,473	726,241	788,715	[1]831,322	[1]841,316
District of Columbia	[2]666,938	[2]679,106	[2]632,952	[1]645,863	[1]602,864
Florida	11,019,735	11,480,359	12,018,676	[1]12,797,613	[1]13,042,596
Georgia	6,136,689	6,629,646	7,230,405	[1]7,688,210	[1]7,839,251
Hawaii	1,028,729	1,040,682	1,057,069	1,028,160	1,043,583
Idaho	951,350	1,019,594	1,090,597	[1]1,131,095	[1]1,135,714
Illinois	10,640,279	10,727,091	11,720,249	[1]12,353,792	14,310,325
Indiana	5,243,761	5,493,653	6,055,055	6,148,000	6,517,000
Iowa	2,622,510	2,753,425	2,885,943	3,015,810	3,142,474
Kansas	2,406,580	2,488,077	2,568,525	2,645,581	2,724,948
Kentucky	2,988,892	3,171,495	3,382,062	3,707,439	3,790,115
Louisiana	[2]3,475,926	[2]3,545,832	[2]3,747,507	4,157,705	4,294,943
Maine	1,281,706	1,313,759	1,351,500	1,405,560	1,461,782
Maryland	5,083,380	5,311,207	5,529,309	5,548,105	5,837,401
Massachusetts	6,062,303	6,435,458	6,846,610	7,252,687	7,794,463
Michigan	10,440,206	11,137,877	11,686,124	11,883,619	12,084,452
Minnesota	4,622,930	4,844,879	5,087,353	5,664,354	5,948,704
Mississippi	1,921,480	2,000,321	2,035,675	[3]2,166,255	2,274,568
Missouri	4,275,217	4,531,192	4,775,931	[1]5,029,094	[1]5,094,640
Montana	844,257	868,892	902,252	936,537	945,000
Nebraska	1,594,928	1,648,104	1,707,455	1,762,094	1,842,621
Nevada	1,186,132	1,296,629	1,434,395	1,548,132	1,670,584
New Hampshire	1,053,966	1,114,540	1,173,958	1,309,171	1,370,542
New Jersey	10,776,982	11,208,558	11,771,941	[1]12,678,379	[1]13,136,251
New Mexico	1,441,078	1,517,517	1,557,376	[3]1,645,424	1,871,386
New York	22,989,629	23,522,461	24,237,291	25,206,782	26,215,053
North Carolina	5,440,426	5,582,994	5,964,939	6,535,801	6,862,591
North Dakota	534,632	557,043	577,498	[3]604,535	627,097
Ohio	10,030,956	10,408,022	10,948,074	[1]11,410,413	[1]11,440,817
Oklahoma	2,763,721	2,804,088	2,990,044	[3]2,990,044	3,237,898
Oregon	2,948,539	3,056,801	3,184,100	3,359,000	3,453,000
Pennsylvania	11,587,027	12,374,073	12,820,704	13,400,000	14,000,000
Rhode Island	1,050,969	1,094,185	1,151,888	1,171,605	1,236,044
South Carolina	2,920,230	3,085,495	[1]3,245,853	3,477,977	3,589,272
South Dakota	612,825	610,640	627,109	689,688	698,793
Tennessee	3,540,682	3,728,486	4,145,380	[1]4,256,722	[1]4,337,666
Texas	17,572,269	18,801,462	20,167,238	[1]21,333,594	[1]21,407,057
Utah	1,618,047	1,719,782	1,822,725	1,753,968	1,780,227
Vermont	665,559	684,864	718,092	707,083	[1]704,331
Virginia	[2]5,750,318	[2]5,969,608	[2]6,343,766	[1]6,690,869	[1]6,789,065
Washington	[2]5,138,928	[2]5,367,559	[2]5,587,817	6,170,489	6,349,230
West Virginia	1,758,557	1,806,004	1,847,560	1,865,466	2,067,886
Wisconsin	5,422,264	5,670,826	5,975,122	6,281,352	6,896,925
Wyoming	577,144	581,817	591,488	[3]603,901	670,000
Outlying areas					
American Samoa	28,643	30,382	33,780	38,367	[1]39,555
Guam	161,434	158,303	156,561	161,493	165,000
Northern Marianas	45,008	44,037	53,140	[3]55,033	[1]56,603
Puerto Rico	1,501,485	1,734,033	1,796,077	[1]1,864,596	[1]1,862,243
Virgin Islands	122,094	122,286	122,188	[3]122,188	122,188

[1] Data imputed by NCES based on previous year's data.

[2] Data include imputations by NCES for food services, enterprise operations, or both.

[3] Actual amount reported by state.

NOTE: All FY 98 and FY 99 data are state estimates, except where noted. Estimates are as of December 1998. Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates Survey," 1998–99, and "National Public Education Financial Survey," 1994–95 through 1996–97.

Table 6.—Preliminary student membership and number of teachers, and estimates of revenues, expenditures, and pupil/teacher ratio, for public elementary and secondary schools, by state, for grades prekindergarten through 12: School year 1997–98/Fiscal year 1998

	Preliminary		Estimated				
State	Membership	Number of teachers	Revenues (in thousands)	Current expenditures (in thousands)	Pupil/ teacher ratio	Per-pupil revenue	Per-pupil expenditure
United States	46,127,186	2,744,466	$321,088,672	[1]$284,506,270	16.8	$ 6,961	$ 6,168
Alabama	[2]749,187	[2]45,973	[1]4,118,889	[1]3,581,323	16.3	5,498	4,780
Alaska	132,123	7,625	1,255,588	1,101,461	17.3	9,503	8,337
Arizona	814,113	41,129	[1]4,661,699	[1]3,739,441	19.8	5,726	4,593
Arkansas	456,497	[2]26,932	[1]2,462,099	2,095,350	16.9	5,393	4,590
California	[2]5,803,734	[2]268,581	36,891,347	32,002,810	21.6	6,356	5,514
Colorado	687,167	37,840	4,287,716	3,792,596	18.2	6,240	5,519
Connecticut	535,164	37,658	5,101,000	4,704,000	14.2	9,532	8,790
Delaware	111,960	6,850	983,075	[1]831,322	16.3	8,781	7,425
District of Columbia	77,111	[2]4,399	[1]725,500	[1]645,863	17.5	9,409	8,376
Florida	2,294,077	124,473	[1]14,749,274	[1]12,797,613	18.4	6,429	5,579
Georgia	1,375,980	85,005	[1]8,637,802	[1]7,688,210	16.2	6,278	5,587
Hawaii	189,887	10,653	1,234,163	1,028,160	17.8	6,499	5,415
Idaho	244,403	13,207	1,421,900	[1]1,131,095	18.5	5,818	4,628
Illinois	1,998,289	118,734	13,556,813	[1]12,353,792	16.8	6,784	6,182
Indiana	987,483	57,371	[1]7,976,763	6,148,000	17.2	8,078	6,226
Iowa	501,054	32,717	3,310,313	3,015,810	15.3	6,607	6,019
Kansas	468,687	31,527	3,131,818	2,645,581	14.9	6,682	5,645
Kentucky	669,322	40,488	4,047,188	3,707,439	16.5	6,047	5,539
Louisiana	776,813	48,599	4,442,982	4,157,705	16.0	5,720	5,352
Maine	212,526	15,700	1,551,986	1,405,560	13.5	7,303	6,614
Maryland	830,744	48,318	6,065,605	5,548,105	17.2	7,301	6,678
Massachusetts	949,006	67,170	7,433,136	7,252,687	14.1	7,833	7,642
Michigan	[2]1,702,672	90,529	13,664,711	11,883,619	18.8	8,025	6,979
Minnesota	853,621	51,998	6,397,456	5,664,354	16.4	7,494	6,636
Mississippi	504,792	29,441	[2]2,344,478	[3]2,166,255	17.1	4,644	4,291
Missouri	910,654	60,869	[1]5,862,813	[1]5,029,094	15.0	6,438	5,523
Montana	162,335	10,228	1,041,000	936,537	15.9	6,413	5,769
Nebraska	292,681	20,139	2,017,343	1,762,094	14.5	6,893	6,021
Nevada	296,621	16,053	1,836,068	1,548,132	18.5	6,190	5,219
New Hampshire	201,629	12,931	1,407,523	1,309,171	15.6	6,981	6,493
New Jersey	1,250,276	89,671	[1]13,320,251	[1]12,678,379	13.9	10,654	10,140
New Mexico	331,673	19,647	[2]1,903,795	[3]1,645,424	16.9	5,740	4,961
New York	2,861,823	190,874	27,627,333	25,206,782	15.0	9,654	8,808
North Carolina	1,236,083	77,785	6,581,368	6,535,801	15.9	5,324	5,288
North Dakota	118,572	8,070	[2]620,268	[3]604,535	14.7	5,231	5,098
Ohio	1,847,035	110,757	[1]13,109,316	[1]11,410,413	16.7	7,097	6,178
Oklahoma	623,673	40,188	[2]3,251,302	[3]2,990,044	15.5	5,213	4,794
Oregon	541,346	26,935	3,504,000	3,359,000	20.1	6,473	6,205
Pennsylvania	1,815,151	108,014	15,100,000	13,400,000	16.8	8,319	7,382
Rhode Island	153,321	10,598	1,177,483	1,171,605	14.5	7,680	7,642
South Carolina	[2]659,256	42,336	4,103,299	3,477,977	15.6	6,224	5,276
South Dakota	142,443	9,282	792,065	689,688	15.3	5,561	4,842
Tennessee	[2]893,020	54,142	[1]4,527,242	[1]4,256,722	16.5	5,070	4,767
Texas	3,891,877	254,557	25,293,846	[1]21,333,594	15.3	6,499	5,482
Utah	482,957	21,115	2,228,208	1,753,968	22.9	4,614	3,632
Vermont	105,984	7,909	832,272	707,083	13.4	7,853	6,672
Virginia	1,110,815	[2]75,524	[1]7,593,290	[1]6,690,869	14.7	6,836	6,023
Washington	991,235	49,074	[2]6,961,604	6,170,489	20.2	7,023	6,225
West Virginia	301,419	20,947	2,258,080	1,865,466	14.4	7,491	6,189
Wisconsin	881,780	57,227	6,983,016	6,281,352	15.4	7,919	7,123
Wyoming	97,115	6,677	[2]702,585	[3]603,901	14.5	7,235	6,218
Outlying areas							
American Samoa	15,214	762	51,550	38,367	20.0	3,388	2,522
Guam	32,444	1,363	166,000	161,493	23.8	5,117	4,978
Northern Marianas	9,246	483	[2]58,300	[3]55,033	19.1	6,305	5,952
Puerto Rico	617,322	38,953	[1]1,901,352	[1]1,864,596	15.8	3,080	3,020
Virgin Islands	22,136	1,559	[2]142,620	[3]122,188	14.2	6,443	5,520

[1] Data imputed by NCES based on previous year's data.

[2] Data imputed by NCES based on current-year data.

[3] Actual amount reported by state.

NOTE: Data for membership and teachers are preliminary. Other data are state estimates, except where noted. Details may not sum to totals due to rounding. Estimates are as of December 1998.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates Survey," 1998–99.

Table 7.—Estimated membership, number of teachers, revenues, expenditures, and pupil/teacher ratio, for public elementary and secondary schools, by state, for grades prekindergarten through 12: School year 1998–99/Fiscal year 1999

State	Membership	Number of teachers	Revenues (in thousands)	Current expenditures (in thousands)	Pupil/ teacher ratio	Per-pupil revenue	Per-pupil expenditure
United States	[1]46,349,803	[1]2,787,154	[1]$342,122,322	$296,975,536	16.6	$ 7,381	$ 6,407
Alabama	758,816	46,196	[1]4,440,327	[1]3,631,808	16.4	5,852	4,786
Alaska	134,374	7,858	1,293,255	1,156,534	17.1	9,624	8,607
Arizona	[1]829,252	[1]42,032	[1]5,053,997	[1]3,813,659	19.7	6,095	4,599
Arkansas	[1]455,647	[1]26,971	[1]2,615,679	[1]2,094,015	16.9	5,741	4,596
California	5,828,938	[1]270,639	41,133,852	34,132,515	21.5	7,057	5,856
Colorado	[2]699,135	38,975	4,557,893	4,031,530	17.9	6,519	5,766
Connecticut	544,690	40,754	5,568,000	5,135,000	13.4	10,222	9,427
Delaware	113,167	6,701	978,302	[1]841,316	16.9	8,645	7,434
District of Columbia	[2]71,889	[1]4,115	[1]719,900	[1]602,864	17.5	10,014	8,386
Florida	[2]2,335,124	[2]128,791	[1]15,979,428	[1]13,042,596	18.1	6,843	5,585
Georgia	1,401,291	87,555	10,056,281	[1]7,839,251	16.0	7,176	5,594
Hawaii	[2]187,395	10,550	1,252,676	1,043,583	17.8	6,685	5,569
Idaho	245,100	14,100	1,547,300	[1]1,135,714	17.4	6,313	4,634
Illinois	2,022,108	122,775	13,963,518	14,310,325	16.5	6,905	7,077
Indiana	989,134	57,927	[1]8,504,345	6,517,000	17.1	8,598	6,589
Iowa	502,571	33,686	3,449,346	3,142,474	14.9	6,863	6,253
Kansas	469,850	31,493	3,225,772	2,724,948	14.9	6,866	5,800
Kentucky	646,092	40,381	4,181,790	3,790,115	16.0	6,472	5,866
Louisiana	753,722	48,928	4,618,036	4,294,943	15.4	6,127	5,698
Maine	[2]219,741	16,877	1,614,066	1,461,782	13.0	7,345	6,652
Maryland	837,250	49,490	6,600,598	5,837,401	16.9	7,884	6,972
Massachusetts	[1]964,358	[1]68,482	7,825,606	7,794,463	14.1	8,115	8,083
Michigan	1,692,700	90,200	13,895,645	12,084,452	18.8	8,209	7,139
Minnesota	857,900	52,700	6,718,852	5,948,704	16.3	7,832	6,934
Mississippi	502,382	29,840	2,461,702	2,274,568	16.8	4,900	4,528
Missouri	[1]921,391	[1]61,790	[1]6,313,720	[1]5,094,640	14.9	6,852	5,529
Montana	161,023	10,200	1,051,000	945,000	15.8	6,527	5,869
Nebraska	291,010	[2]20,237	2,109,535	1,842,621	14.4	7,249	6,332
Nevada	[2]311,063	16,835	1,968,173	1,670,584	18.5	6,327	5,371
New Hampshire	[2]194,512	12,469	1,472,322	1,370,542	15.6	7,569	7,046
New Jersey	[1]1,293,840	[1]93,102	[1]14,671,538	[1]13,136,251	13.9	11,340	10,153
New Mexico	[2]328,753	19,786	2,067,234	1,871,386	16.6	6,288	5,692
New York	2,852,000	201,000	28,732,426	26,215,053	14.2	10,074	9,192
North Carolina	[2]1,245,608	77,486	6,976,250	6,862,591	16.1	5,601	5,509
North Dakota	[2]113,929	[2]7,840	[1]634,337	627,097	14.5	5,568	5,504
Ohio	[1]1,849,685	[1]111,283	[1]13,973,052	[1]11,440,817	16.6	7,554	6,185
Oklahoma	626,674	40,943	3,252,928	3,237,898	15.3	5,191	5,167
Oregon	[2]543,176	[2]27,289	3,602,000	3,453,000	19.9	6,631	6,357
Pennsylvania	1,818,090	108,350	15,900,000	14,000,000	16.8	8,745	7,700
Rhode Island	154,485	10,704	1,244,599	1,236,044	14.4	8,056	8,001
South Carolina	644,150	42,120	4,234,605	3,589,272	15.3	6,574	5,572
South Dakota	[1]141,561	9,275	831,957	698,793	15.3	5,877	4,936
Tennessee	908,885	53,119	[1]4,904,222	[1]4,337,666	17.1	5,396	4,773
Texas	3,900,488	254,811	26,897,359	[1]21,407,057	15.3	6,896	5,488
Utah	477,061	21,000	2,261,631	1,780,227	22.7	4,741	3,732
Vermont	105,442	8,069	[1]881,307	[1]704,331	13.1	8,358	6,680
Virginia	[1]1,125,735	[1]76,791	[1]8,190,548	[1]6,789,065	14.7	7,276	6,031
Washington	[2]999,628	49,316	7,254,975	6,349,230	20.3	7,258	6,352
West Virginia	296,332	20,856	2,330,339	2,067,886	14.2	7,864	6,978
Wisconsin	888,245	[1]57,837	7,360,099	6,896,925	15.4	8,286	7,765
Wyoming	[2]94,411	6,630	750,000	670,000	14.2	7,944	7,097
Outlying areas							
American Samoa	[2]15,666	[1]787	54,287	[1]39,555	19.9	3,465	2,525
Guam	[2]32,821	[1]1,383	[1]178,737	165,000	23.7	5,446	5,027
Northern Marianas	[2]9,498	[2]496	[1]63,743	[1]56,603	19.1	6,711	5,959
Puerto Rico	[1]615,787	[1]38,985	[1]2,018,690	[1]1,862,243	15.8	3,278	3,024
Virgin Islands	21,983	1,556	142,620	122,188	14.1	6,488	5,558

[1] Data imputed by NCES based on previous year's data.

[2] Actual count or amount reported by state.

NOTE: All data are state estimates, except where noted. Estimates are as of December 1998. Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "Early Estimates Survey," 1998–99.

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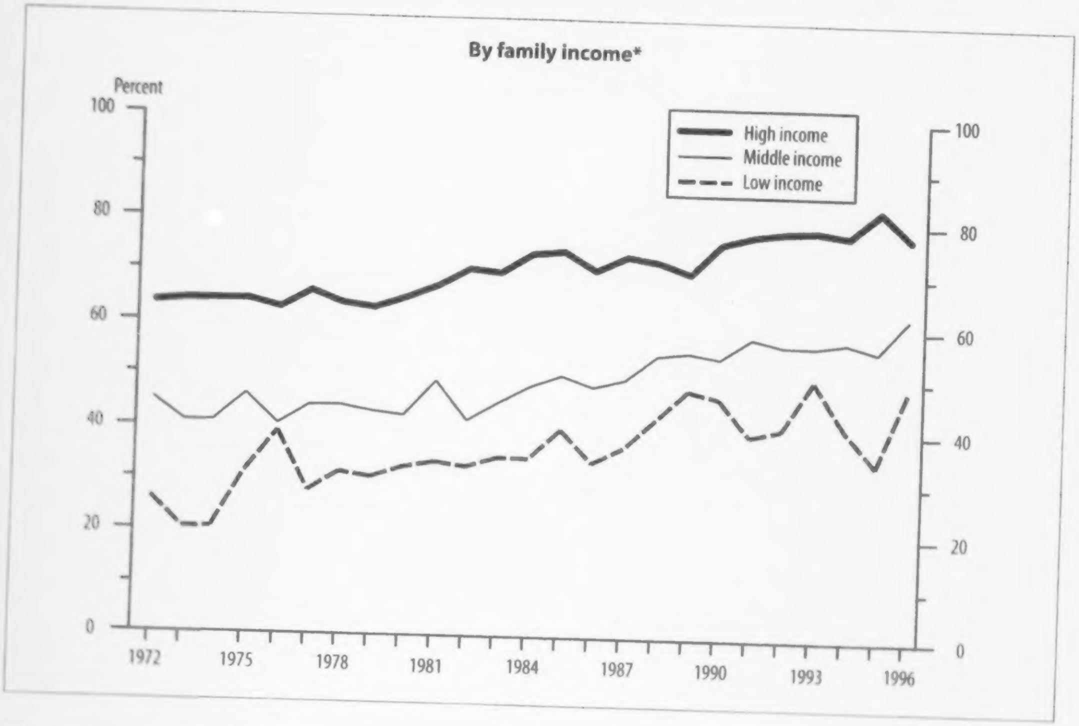
Immediate Transition From High School to College

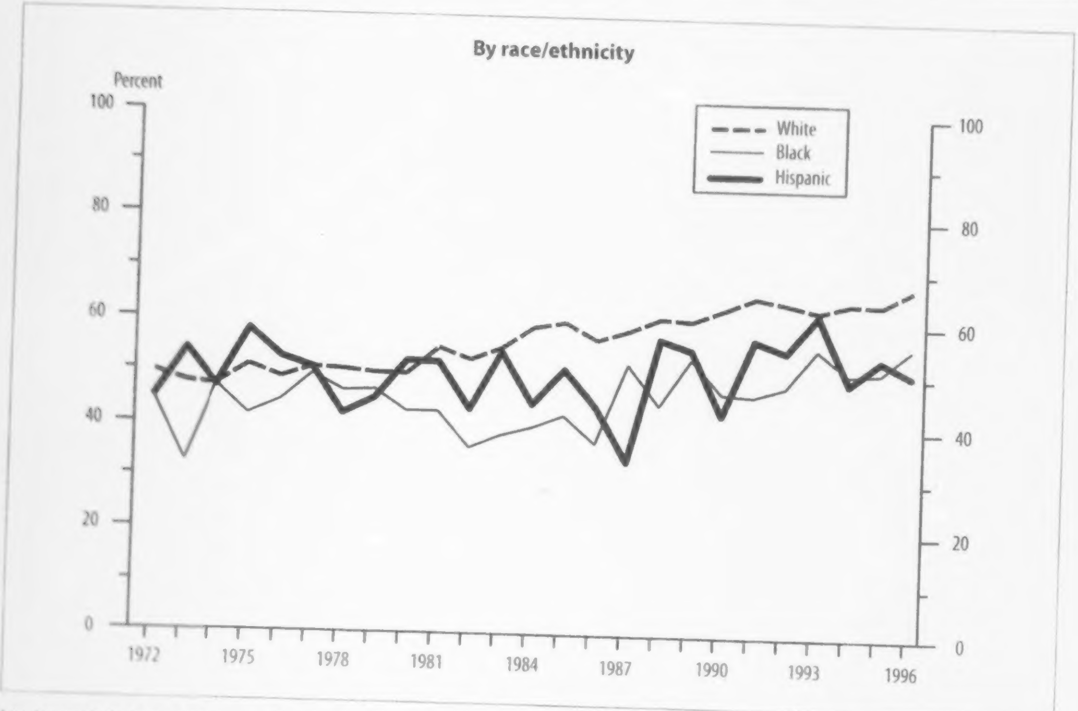
This article was originally published as an Indicator of the Month, taken from* The Condition of Education 1998. *The sample survey data are from the October Current Population Survey (CPS), conducted by the U.S. Census Bureau.

Since most college students enroll in college immediately after completing high school, the percentage of high school completers enrolled in college the October after finishing high school is an indicator of the total proportion of that year's high school completers who will ever enroll in college. The percentage enrolling not only reflects the accessibility of higher education to high school completers, but also shows the value completers place on attending college as compared to working, entering the military, starting families, or pursuing other interests.

- Between 1985 and 1996, the percentage of high school completers going directly to college increased from 58 to 65 percent.
- Between 1985 and 1996, high school completers from high-income families were more likely than their counterparts from low-income families to go directly to college after completing high school.
- Between 1990 and 1996, the higher the education level of a student's parents, the more likely the student was to enroll in college the year after completing high school.
- The percentage of black high school completers going directly to college increased substantially between 1973 and 1995.

Percentage of high school completers ages 16–24 who were enrolled in college the October after completing high school: October 1972–96


By family income*


By race/ethnicity

*Low income is the bottom 20 percent of all family incomes; high income is the top 20 percent of all family incomes; and middle income is the 60 percent in between. Data on family income were not available in 1974.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October (various years).

Percentage of high school completers ages 16–24 who were enrolled in college the October after completing high school, by type of institution, family income, and race/ethnicity: October 1972–96

				Family income[1]				Race/ethnicity[2]				
		Type of institution		Low		Middle	High	White	Black		Hispanic	
October	Total	2-year	4-year	Annual	3-year average	Annual	Annual	Annual	Annual	3-year average	Annual	3-year average
1972	49.2	—	—	26.1	(3)	45.2	63.8	49.7	44.6	(3)	45.0	(3)
1973	46.6	14.9	31.7	20.3	(3)	40.9	64.4	47.8	32.5	41.4	54.1	48.7
1975	50.7	18.2	32.6	31.2	(3)	46.2	64.5	51.1	41.7	44.4	58.0	52.5
1977	50.6	17.5	33.1	27.7	32.8	44.2	66.3	50.8	49.5	46.8	50.8	48.5
1979	49.3	17.5	31.8	30.5	31.5	43.2	63.2	49.9	46.7	45.3	45.0	46.4
1981	53.9	20.5	33.5	33.6	33.0	49.2	67.6	54.9	42.7	40.4	52.1	49.2
1983	52.7	19.2	33.5	34.6	34.0	45.2	70.3	55.0	38.2	37.9	54.2	47.3
1985	57.7	19.6	38.1	40.2	36.2	50.6	74.6	60.1	42.2	39.6	51.0	46.5
1987	56.8	18.9	37.9	36.9	37.8	50.0	73.8	58.6	52.2	44.5	33.5	44.9
1989	59.6	20.7	38.9	48.1	45.8	55.4	70.7	60.7	53.4	48.2	55.1	51.6
1990	60.1	20.1	40.0	46.7	44.7	54.4	76.6	63.0	46.8	48.9	42.7	51.7
1991	62.5	24.9	37.7	39.5	42.3	58.4	78.2	65.4	46.4	47.2	57.2	51.6
1992	61.9	23.0	38.9	40.9	43.6	57.0	79.0	64.3	48.2	50.1	55.0	58.1
1993	61.5	22.4	39.1	50.4	44.1	56.9	79.3	62.9	55.6	51.5	62.2	55.4
1994	61.9	21.0	40.9	41.0	41.9	57.8	78.4	64.5	50.8	52.5	49.1	55.0
1995	61.9	21.5	40.4	34.2	41.3	56.1	83.4	64.3	51.2	52.6	53.7	51.2
1996	65.0	23.1	41.9	48.6	(3)	62.7	78.0	67.4	56.0	(3)	50.8	(3)

— Not available. Data for type of institution were not collected until 1973.

[1] Low income is the bottom 20 percent of all family incomes; high income is the top 20 percent of all family incomes; and middle income is the 60 percent in between.

[2] Included in the total but not shown separately are high school completers from other racial/ethnic groups.

[3] Due to small sample sizes for the low-income, black, and Hispanic categories, 3-year averages were also calculated for each category. For example, the 3-year average for blacks in 1973 is the average percentage of black high school completers ages 16–24 who were enrolled in college the October after completing high school in 1972, 1973, and 1974. Thus, 3-year averages cannot be calculated for 1972 and 1996, and for groups of 3 years in which some data are not available (e.g., 1973–75 for the low-income category).

NOTE: Details may not add to totals due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October (various years).

Data source: The U.S. Census Bureau's Current Population Survey (CPS), October (various years).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education 1998* (NCES 98-013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education 1998 (http://nces.ed.gov/pubs98/condition98/index.html)*, or
- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999-025).

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College Access and Affordability

Susan P. Choy

This article was originally published as an Issue in Focus, taken from* The Condition of Education 1998*. The numerous data sources are listed at the end of this article.

Postsecondary education generates both individual and public benefits. College graduates with a bachelor's degree earn substantially more than those with only a high school education,[1] and attending college enriches students' lives in other ways that are long lasting and extend to the next generation (Pascarella and Terenzini 1991). Society benefits from an educated population as well. In recent years, there has been evidence that education requirements for all types of occupations are growing and that the fastest growing occupations are those that require postsecondary training.[2] Furthermore, many believe that increased participation in postsecondary education is crucial to maintaining a competitive position in the global economy.[3]

Federal and state governments encourage participation in postsecondary education and have tried to reduce price barriers so that postsecondary education is accessible. State subsidies to public institutions allow them to charge tuition that is substantially below the actual cost of education, while federal (and sometimes state) grant, loan, and work-study programs help provide financially needy students with the upfront money they need to invest in postsecondary education. Many institutions increase accessibility through their own financial aid and scholarship programs. The extent of public subsidies, the nature of the laws and regulations that determine who is eligible for financial aid, and the amount of funding provided for financial aid programs all greatly affect the affordability of postsecondary education for students from various income groups and, thus, their access to its benefits.

Reflecting the benefits of postsecondary education and the policies and programs that increase accessibility, high school completers are enrolling at record rates, and substantial numbers of older adults are enrolling as well.[4] Although interest in postsecondary education is growing, rising tuition and fees have generated considerable public concern.[5] This raises a series of important questions: to whom is postsecondary education accessible and to what extent is accessibility related to income? How much does attending postsecondary education cost students? How affordable is postsecondary education? How are students and their families coping with the price of attendance? What impact do their financing strategies have on their educational experiences? Some of the statistical evidence available to address these questions from a national perspective is summarized here.

This essay examines the extent to which the financial aid system promotes access to postsecondary education by equalizing income differences. It does not address the effects of other factors, such as low employment rates or a robust economy, on enrollment, nor does it examine the sensitivity of different income groups to price, the types of aid available, or differences in access by race/ethnicity. For information about trends of enrollment in higher education, see *The Condition of Education 1998* (Wirt et al. 1998).

Access to Postsecondary Education

Increasingly, high school students are being advised to go to college, and growing numbers are taking that advice. However, not all high school completers have the same access. Some of the characteristics associated with higher rates of enrollment are related to income, suggesting that the price of attending is a barrier. However, certain attitudes and behaviors appear to be factors as well.

Increasingly, high school students are being advised to go to college.

The proportions of high school sophomores whose teachers, counselors, and parents encouraged them to go to college increased dramatically between 1980 and 1990. High school sophomores in 1990 were twice as likely as their counterparts in 1980 to report that their teachers and guidance counselors recommended that they go to college (table 1). In 1990, more than half of even the lowest performing sophomores (those scoring in the lowest quartile on mathematics and reading tests) were advised to attend.

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[1] In 1996, young adult workers ages 25-34 who had completed a bachelor's degree or higher earned substantially more than those who had only completed high school (males earned 54 percent more, and females earned 88 percent more) (Wirt et al. 1998, 104).

[2] For a review of the evidence, see Mumper (1996).

[3] See, for example, Reich (1991).

[4] In fall 1995, 37 percent of all undergraduates in institutions of higher education were 25 years or older (Snyder, Hoffman, and Geddes 1997).

[5] A national commission was established to study this problem and recently released its final report, *Straight Talk on the Cost of Higher Education* (National Commission on the Cost of Higher Education 1998).

Table 1.—Percentage of high school sophomores who reported being advised to attend college by various adults: 1980 and 1990

Recommended by	All students 1980	All students 1990	Lowest test quartile* 1980	Lowest test quartile* 1990
Father	59	77	40	60
Mother	65	83	48	65
Guidance counselor	32	65	26	56
Teacher	32	66	28	57

*Composite mathematics, reading, and vocabulary performance.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *America's High School Sophomores: A Ten Year Comparison, 1980–1990* (NCES 93-087), p. 47.

Interest in postsecondary education among high school completers is almost universal.

Nearly all 1992 high school completers (97 percent) reported that they planned to continue their education at some time, and 71 percent expected to earn a bachelor's degree. Even among completers whose families had low incomes (less than $25,000) or whose parents had no more than a high school education, the vast majority (94 percent in each case) planned to continue their education at some time. Sixty-five percent of the 1992 high school completers enrolled in some type of postsecondary education immediately after high school. By 1994, 75 percent of this same group had enrolled (Berkner and Chavez 1997).

Enrollment in college immediately after high school has risen over the past 20 years.

The proportion of high school completers who enrolled in an institution of higher education (a 2- or 4-year college or university) immediately following high school increased from 49 to 65 percent between 1976 and 1996, with growth throughout the 20-year period (figure 1). Of the overall gain of 16 percentage points, about half of the increase (7 percentage points) was in 2-year institutions and about half (9 percentage points) was in 4-year institutions (Wirt et al. 1998, 46).

Another indicator of the interest in higher education is the percentage of young adult high school completers enrolled at any given time. This percentage reflects not only the number of high school completers who enroll immediately after high school, but also the number who delay entry but enter within the next few years, and the amount of time both groups are enrolled. Between the late 1960s and the mid-1980s, about one-third (29 to 35 percent) of high school completers ages 18–24 were enrolled in higher education in any given year. After that, the proportion enrolled increased gradually to 43 percent in 1996 (Snyder, Hoffman, and Geddes 1997).

While the enrollment rate in higher education has increased for high school completers in the aggregate, not all segments of this population participate at the same rate. Because issues of affordability are the focus in this essay, income differences are given the most attention. However, differential participation rates extend to other characteristics, and some of these are discussed as well.

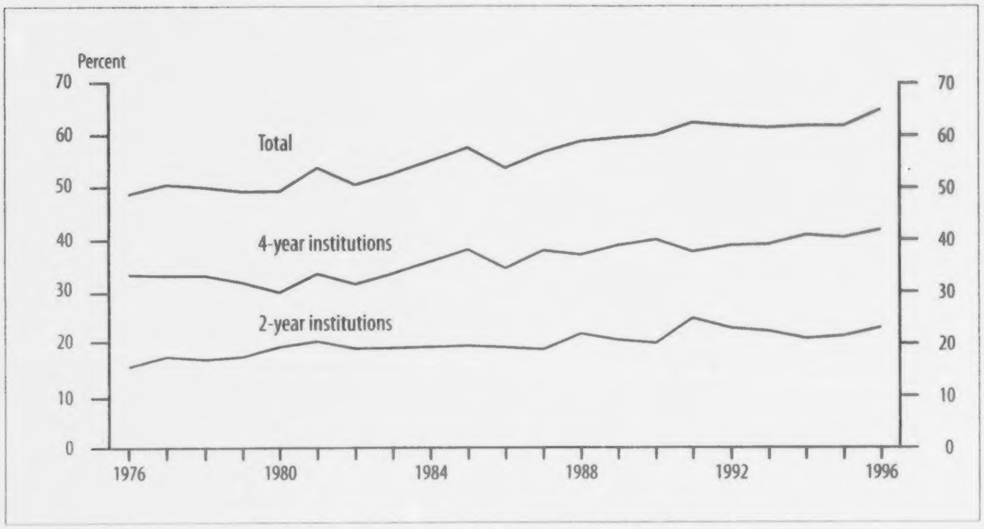
Enrollment rates increase with family income.

In 1996, high school completers from low-income families were less likely to go to a 2- or 4-year college or university immediately after high school (49 percent) than were their peers from middle-income families (63 percent), who, in turn, were less likely to enroll than completers from high-income families (78 percent) (figure 2).

Enrollment rates also increase with parents' education level.

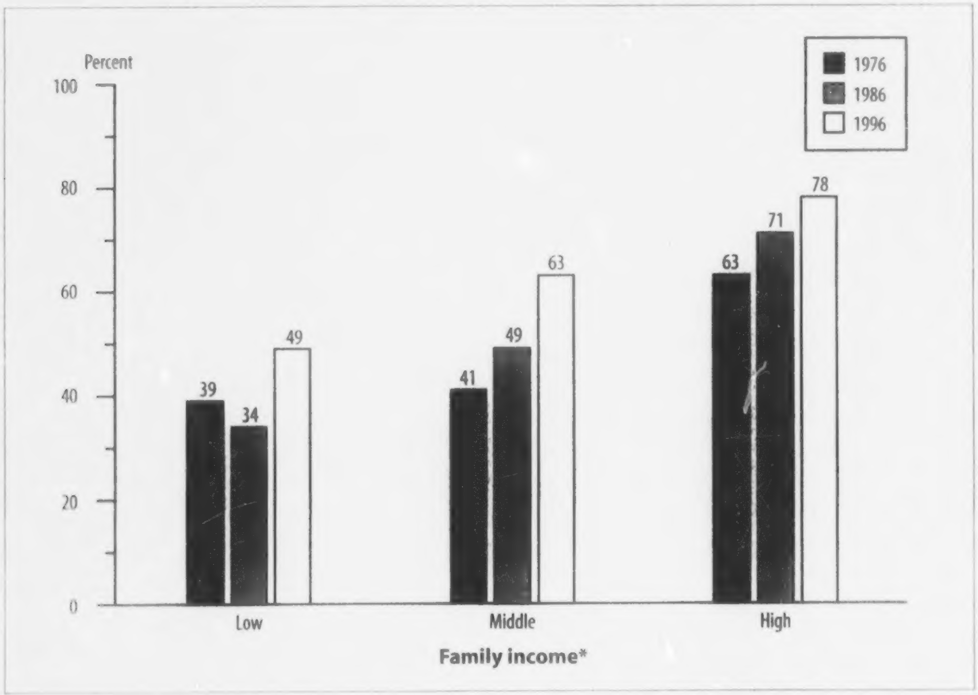
Students are much more likely to enroll in higher education immediately after high school if their parents have at least a bachelor's degree than if they have less education (Wirt et al. 1998, 46). Enrollment rates of 1996 high school completers immediately after high school ranged from 45 percent for those whose parents had less than a high school education to 85 percent for those whose parents had

Figure 1.—Percentage of high school completers who were enrolled in college the October after completing high school: 1976–96



SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October (various years).

Figure 2.—Percentage of high school completers who were enrolled in college the October after completing high school, by family income: 1976, 1986, and 1996



*Low income is the bottom 20 percent of all families; high income is the top 20 percent; and middle income is the 60 percent in between.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October (various years).

a bachelor's degree or higher (figure 3). These data provide evidence of the intergenerational effects of postsecondary education.

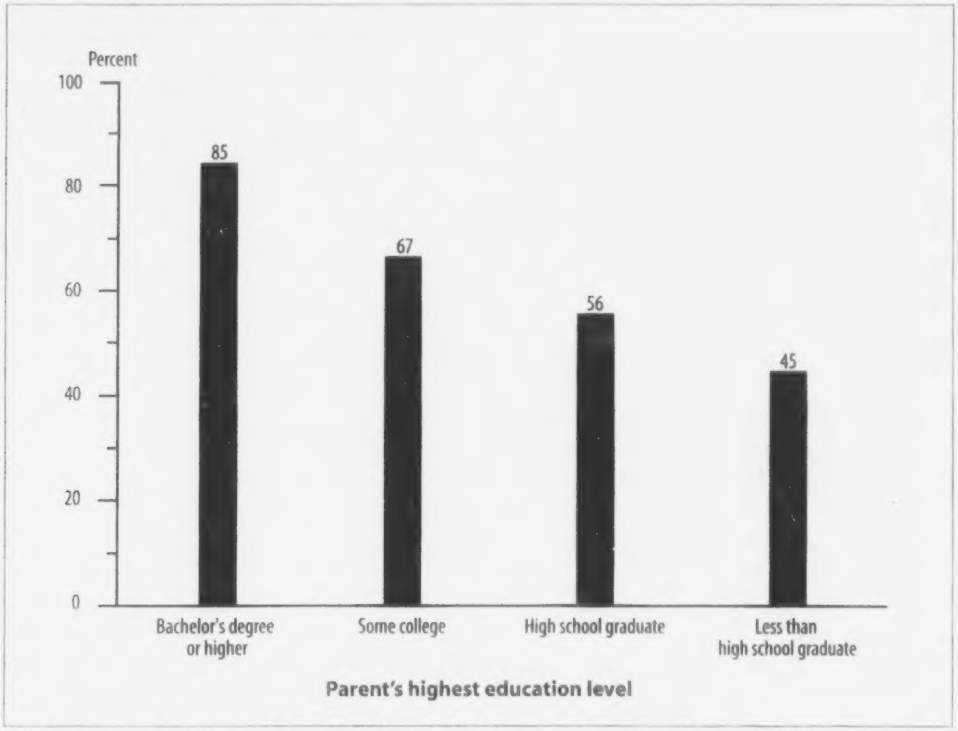
Where students enroll is related to family income.

Among financially dependent undergraduates (that is, most students under 24 years old) who enrolled in postsecondary education for the first time in 1995–96, students from families at all income levels were more likely to enroll in public 4-year institutions than they were to enroll in private, not-for-profit 4-year institutions (25 versus 15 percent) (Wirt et al. 1998, 52). Students from families with incomes of $60,000 or more were the most likely to enroll in private, not-for-profit 4-year institutions (25 percent did so, compared to 16 percent of students from families with incomes between $30,000 and $59,999 and 14 percent of students from families with incomes less than $30,000) (figure 4). Students from families with incomes of $60,000 or more were less likely than other students to enroll in public 2-year institutions (34 percent versus 47 percent of students from families with incomes between $30,000 and $59,999, and 43 percent of students from families with incomes less than $30,000).

The likelihood of being prepared to enter a 4-year institution and taking the necessary steps toward enrollment increases with income.

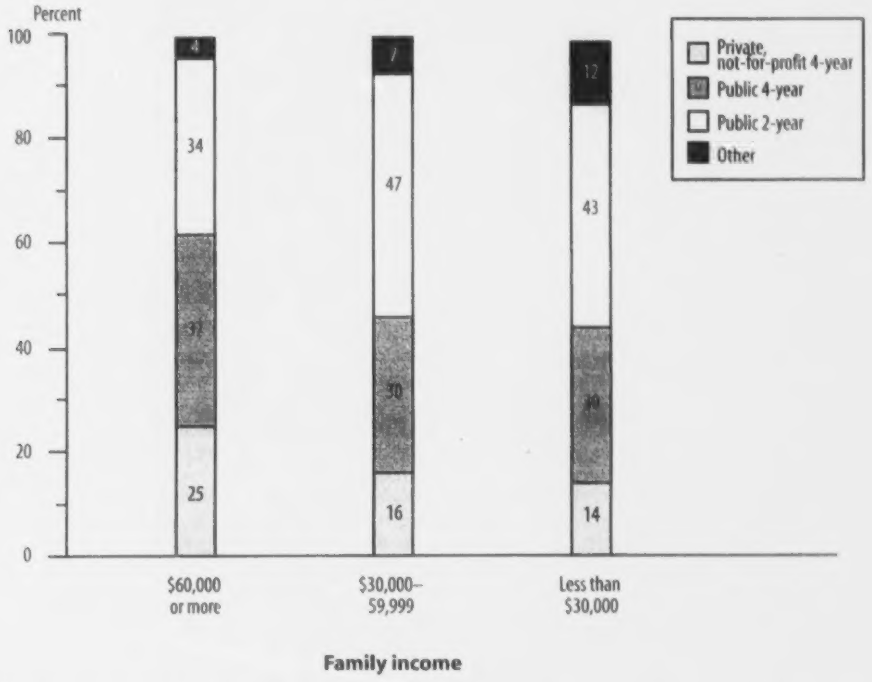
One reason that low-income high school graduates go to 4-year institutions at lower rates than graduates from higher income families is that they are less prepared academically. The likelihood of being prepared increased with income: 53 percent of 1992 low-income graduates (less than $25,000), 68 percent of middle-income graduates ($25,000–74,999), and 86 percent of high school graduates from high-income families ($75,000 or more) had sufficient academic qualifications for admission to a 4-year college (table 2). In addition, among college-qualified 1992 high school graduates, there was a positive relationship between income and each of the following attitudes and behaviors that normally precede enrolling in a 4-year institution: expecting to complete a bachelor's degree; planning to enroll at a 4-year institution; taking steps toward admission (taking an entrance examination and applying); and gaining admission.

Figure 3.—Percentage of high school completers who were enrolled in college the October after completing high school, by parent's highest education level: 1996



SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, October (various years).

Figure 4.—Percentage distribution of dependent, first-time beginning postsecondary students, by family income: 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study, second follow-up (1994); and 1995–96 National Postsecondary Student Aid Study.

Table 2.—Percentage of 1992 high school graduates who were college qualified* and who pursued plans to attend college, by family income

		Family income		
Qualifications, attitudes, and behaviors	Total	Low (Less than $25,000)	Middle ($25,000–74,999)	High ($75,000 or more)
College qualified*	65	53	68	86
Among college-qualified graduates:				
Expected bachelor's degree	83	74	84	96
Planned to attend 4-year college	76	69	76	91
Took steps toward admission to 4-year college	73	62	73	91
Accepted at 4-year college	69	59	69	89
Enrolled in 4-year college by 1994	62	52	62	83

*Four-year college qualification index based on high school GPA, senior class rank, National Education Longitudinal Study 1992 aptitude test, SAT and ACT scores, and curricular rigor.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, third follow-up (1994).

Among high school graduates who have the academic qualifications and take the steps necessary for admission, low-income graduates are just as likely as middle-income graduates to enroll in a 4-year institution.

In 1992, even when low-income high school graduates not only had the academic qualifications for admission to a 4-year college but also took the necessary steps toward admission, they were less likely than high-income graduates to enroll in a 4-year institution by 1994 (83 versus 92 percent) (table 3). However, they were just as likely as middle-income students to be accepted at a 4-year institution (94 versus 93 percent) and to enroll (83 versus 82 percent).

The enrollment rates of low-SES, high-achieving high school students are lower than the enrollment rates for middle- and high-SES, high-achieving groups.

Among 1992 high school seniors in the highest achievement test quartile, students whose families were also in the highest socioeconomic status (SES) quartile were considerably more likely than those in the lowest SES quartile to attend a 4-year college within 2 years of their scheduled graduation (86 versus 58 percent) (table 4). In this sense, the access of low-SES students to 4-year colleges is less than the access of high-SES students. Among high school seniors in this same highest achievement quartile but in the lowest SES quartile, the likelihood of attending a 4-year college within 2 years of graduation increased from 48 percent in 1972 to 58 percent in 1992. Thus, the access of low-SES, high-achieving students has increased since 1972 (Smith 1997, 64).

Table 3.—Percentage of college-qualified 1992 high school graduates taking steps toward admission at a 4-year institution who were accepted, and percentage who were enrolled by 1994, by family income

Acceptance and enrollment by 1994	Total	Family income: Low (Less than $25,000)	Middle ($25,000–74,999)	High ($75,000 or more)
Accepted at a 4-year institution	93	94	93	98
Enrolled by 1994				
4-year institution	84	83	82	92
Any postsecondary institution	96	95	96	98

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, third follow-up (1994).

Table 4.—Percentage of high school seniors who enrolled in a 4-year college within 2 years of scheduled graduation, by socioeconomic status: 1974, 1982, and 1994

Socioeconomic status	Highest achievement quartile: 1972	1980	1992
Total	70	74	77
Low quartile	48	54	58
Middle quartiles	61	69	69
High quartile	85	85	86

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972, first follow-up (1974); High School and Beyond Study, Senior Cohort, third follow-up (1986); and National Education Longitudinal Study of 1988, second follow-up (1992) and third follow-up (1994).

The Price of Attending a Postsecondary Institution

The price of attending a postsecondary institution is of great concern to most students and their families. The amounts they have to pay affect students' initial access to postsecondary education and also their ability to remain enrolled long enough to complete a degree or certificate. The public is extremely anxious about rising prices, and many parents worry that college will be beyond their children's reach (National Commission on the Cost of Higher Education 1998). In reality, however, students have a range of options with widely varying price tags.

The price of attending a higher education institution varies greatly depending on the type of institution.

Financially dependent undergraduates who attended a postsecondary institution full time for the full year in 1995–96 paid average tuition and fees that ranged from $1,300 if they attended a public 2-year institution, to $3,900 at a public 4-year institution, to $13,300 at a private, not-for-profit 4-year institution (table 5). Although the price to students and their families (including living expenses as well as tuition and fees) averaged $20,000 for those who attended a private, not-for-profit 4-year institution, the average total price was about half that ($10,800) for those attending a public 4-year institution and even less ($6,800) for those attending a public 2-year institution.

The amount of tuition and fees included in these prices varies widely, even among 4-year institutions. Although a small proportion (7 percent) of undergraduates (dependent and independent) who attended 4-year institutions full time, full year paid more than $18,000 in tuition and fees in 1995–96, about half (49 percent) paid less than $4,000 (figure 5).

The price of college attendance has escalated, even allowing for inflation.

The price of attending a 2- or 4-year college or university, adjusted for inflation, has risen substantially for both public and private institutions. Between 1986–87 and 1996–97, the average student charges (in 1997 constant dollars) for tuition, room, and board at higher education institutions increased by 20 percent at public institutions and 31 percent at private institutions (table 6).

Affordability

Regardless of the price of postsecondary education, the important issue for students and their families is whether they can afford to pay. The record high enrollments in higher education (14.4 million in fall 1995) (Snyder, Hoffman and Geddes 1997) show that today college is affordable to millions of students. Since increasing access to postsecondary education is an important goal at the national, state, and institutional levels, it is necessary to consider its affordability to students at all income levels. This issue can be examined from a number of perspectives, including growth in prices relative to family income, the resources families need to manage college prices on their own, and the extent to which financial aid reduces the price of attending.

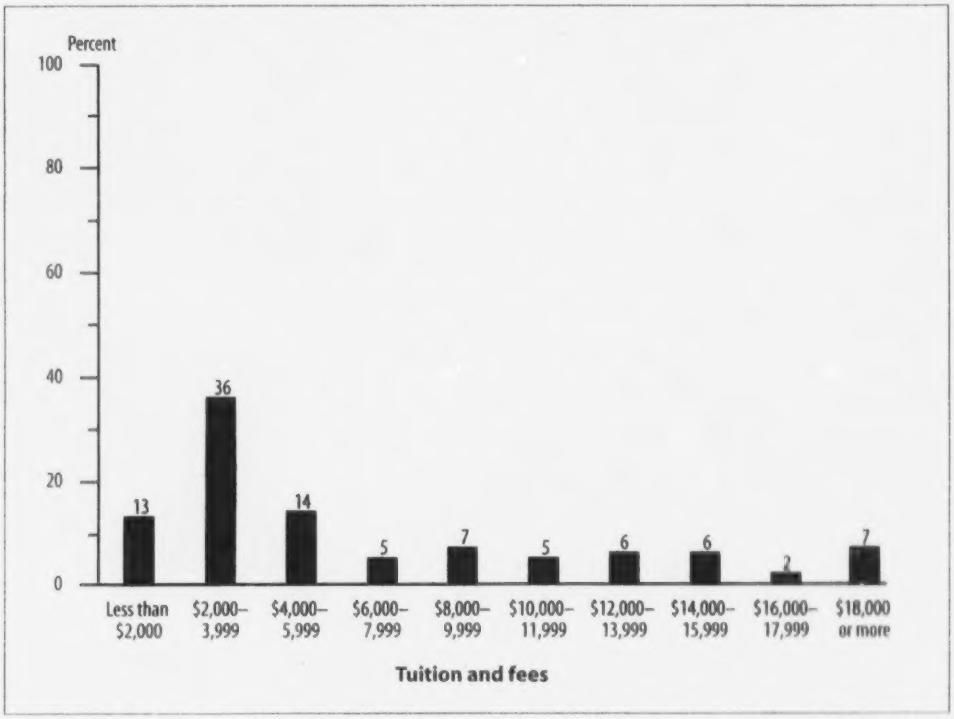
Table 5.—Average price of attending a postsecondary institution for dependent full-time, full-year undergraduates, by type of institution: 1995–96

Type of institution	Tuition and fees	Total price*
All students	$ 6,100	$12,600
Public 4-year	3,900	10,800
Private, not-for-profit 4-year	13,300	20,000
Public 2-year	1,300	6,800

*Total price includes tuition, room and board, transportation, books and supplies, and other costs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study.

Figure 5.—Percentage distribution of full-time, full-year undergraduates at 4-year colleges, by tuition and fees: 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study.

Table 6.—Average prices for undergraduate higher education (in 1997 constant dollars), by type of institution: 1986–87 and 1996–97

Type of institution	1986–87	1996–97	Percent change
	Average tuition, room, and board*		
Public	$ 5,500	$ 6,600	20
Private	14,000	18,300	31
	Average tuition and fees*		
Public	1,600	2,300	44
Private	9,100	12,700	40

*Weighted by student enrollment.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics: 1997* (NCES 98-015), tables 38 and 312; and U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-60, "Income, Poverty, and Valuation of Non-Cash Benefits" (various years).

The price of college attendance has increased faster than family incomes.

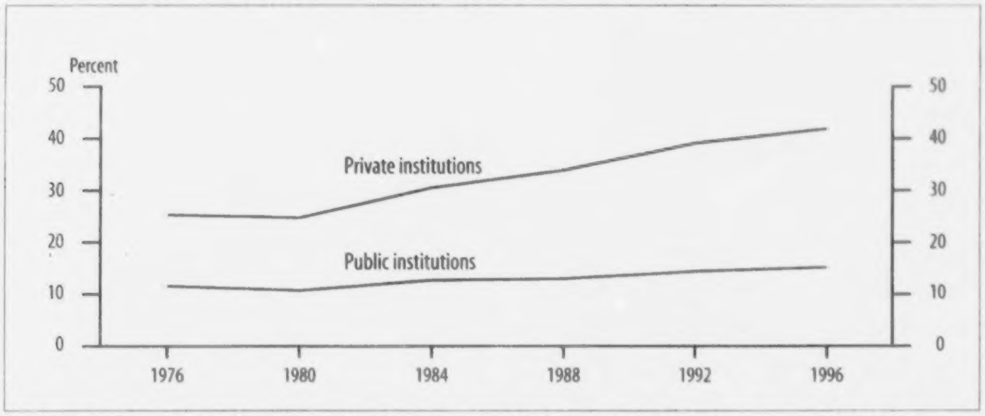
More important than the increase in inflation-adjusted prices is the fact that average charges for tuition, room, and board at 2- and 4-year colleges and universities have increased faster than family incomes, especially at private institutions (figure 6).

Average prices at public institutions increased from 13 percent of the median family income in 1986 to 15 percent in 1996, and at private institutions, from 32 to 42 percent during the same period (Smith 1997, 70). The increase was larger for low-income families than for high-income families. Between 1986 and 1996, charges at public institutions increased from 27 to 33 percent of family income for those at the 20th income percentile, compared to an increase from 7 to 9 percent for families at the 80th percentile. At private institutions, the corresponding increases in charges were from 69 to 90 percent of family income at the 20th percentile and from 19 to 24 percent at the 80th percentile (Smith 1997).

Student financial aid increases affordability for eligible students.

Postsecondary education would be beyond the reach of many families without financial assistance. Financial aid eligibility rules specify an expected family contribution (EFC) that is based on financial circumstances (mainly family income and assets). This amount is a rough measure of what families can afford on their own. Therefore, comparing the amounts families at different income levels are expected to pay toward the price of attending provides an

Figure 6.—Average undergraduate tuition, room, and board as a percentage of median family income: 1976–96

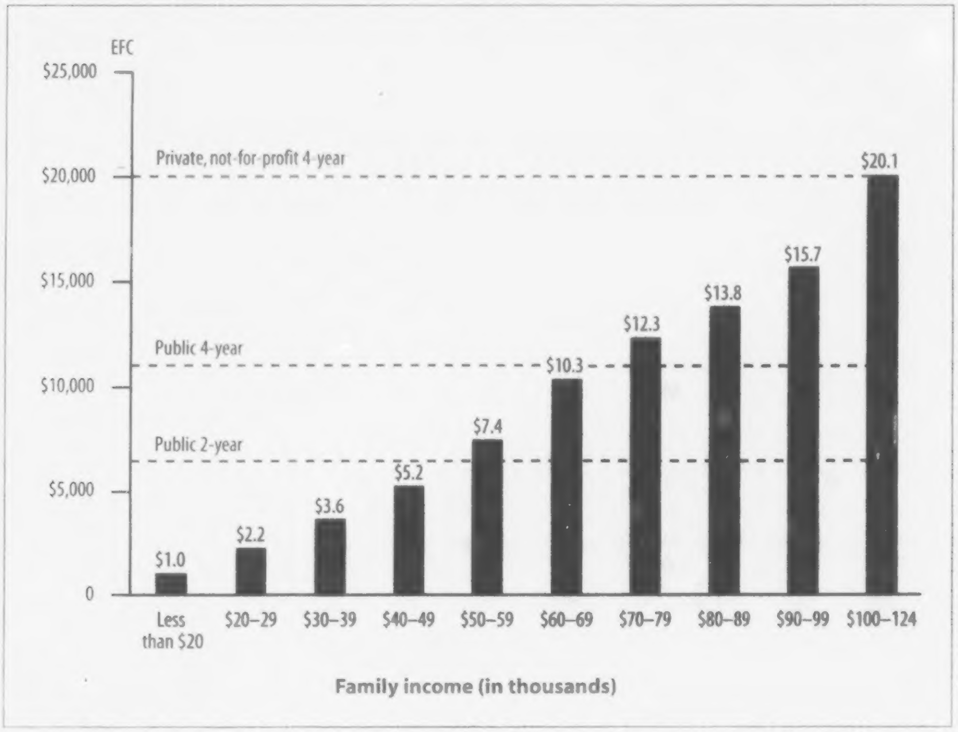


SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics: 1997* (NCES 98-015); and U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-60, "Income, Poverty, and Valuation of Non-Cash Benefits" (various years).

indicator of the affordability of various types of institutions. In 1995–96, for example, families with incomes of $50,000–59,999 had an average EFC of $7,400, enough to cover the average price of attending a public 2-year institution without financial aid. Families with incomes of $70,000–79,999 had an average EFC of $12,300, enough to cover the price of attending a public 4-year institution without aid. Families with incomes of $100,000–124,000 had an average EFC of $20,100, about equal to the average cost of attending a private, not-for-profit 4-year institution (figure 7).

Half of all undergraduates received some type of financial aid from federal, state, institutional, or other sources in 1995–96 (table 7). Thirty-nine percent received grants, and 26 percent took out loans. Among financially dependent students, about two-thirds (66 percent) of those from families with incomes less than $20,000 received grants, as did 51 percent of those with incomes between $20,000 and $39,999. As family income rises above $40,000, students are less likely to be eligible for need-based grants and scholarships. When grants are not sufficient, students qualifying for federal financial aid may take out low-interest, subsidized loans through the Stafford loan program. Students ineligible for subsidized loans because their incomes are too high can take out unsubsidized Stafford loans if they are otherwise eligible. Some states and institutions have their own loan programs, but most undergraduate borrowing is through the Stafford loan program (Berkner 1998).

Figure 7.—Average expected family contribution (EFC) for dependent students by family income: 1995–96



NOTE: The horizontal dotted lines on the figure represent the average student budgets for full-time, full-year students at the indicated type of institution.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study.

For undergraduates from families in the lowest income quartile, student aid covered, on average, more than half the price of attending a 4-year institution in 1995–96. It covered 54 percent at public institutions and 60 percent at private, not-for-profit institutions (table 8). Because of the criteria for awarding student aid, the percentage of total price covered by aid at public 4-year institutions declined as family income increased. The same was generally true at private, not-for-profit 4-year institutions, except that lower and lower-middle-income students had similar amounts covered (60 and 58 percent). At public 2-year institutions, aid covered an average of 38 percent of the total price for low-income students and smaller proportions for students with higher incomes.

Despite financial aid, many students have unmet need.

The net amount that students actually pay to attend college is the total price charged by the institution minus any financial aid they are awarded. This price includes tuition, fees, and a budgeted amount of living costs. In 1995–96, the average net price of attending college (price minus aid received) for a dependent, full-year undergraduate (including aided and unaided students in the average) was $7,300 at a public 4-year institution; $11,200 at a private, not-for-profit 4-year institution; and $5,700 at a public 2-year institution (table 9). Because financial aid reduces the net price for low-income students, it increases the affordability of postsecondary education for them.

Table 7.—Percentage of undergraduates with student financial aid from any source in 1995–96, by family income and type of aid

Family income	Any aid*	Grants	Loans
Total	50	39	26
Family income in 1994 (dependent students only)			
Less than $20,000	70	66	35
$20,000–39,999	60	51	38
$40,000–59,999	47	30	32
$60,000–79,999	43	25	27
$80,000–99,999	38	20	23
$100,000 or more	28	17	13

*Includes aid from federal, state, institutional, and other sources. Also includes other types of aid, such as work study.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study.

Table 8.—Total aid as a percentage of total price, for dependent full-time, full-year undergraduates, by family income quartile and type of institution attended: 1995–96

Family income quartile	Public 4-year	Private, not-for-profit 4-year	Public 2-year
Total	33	45	17
Low	54	60	38
Lower middle	41	58	14
Upper middle	26	46	9
High	17	25	4

NOTE: Total price includes tuition and fees, and an institutionally determined allowance for student living expenses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study, second follow-up (1994).

For students from low-income families, the total unmet need remains a substantial proportion of family income. The average unmet need (net price minus the EFC) for low-income full-time, full-year dependent undergraduates attending public 4-year institutions was about $3,800 (table 9). For those attending public 2-year institutions, the amount was similar ($3,200). Average unmet need for their counterparts at private, not-for-profit 4-year institutions was much higher ($6,200). These are the amounts above and beyond the EFC that must be covered by students and their families by borrowing more, working, reducing their living costs, or some other means.

In addition to the fact that lower income students have higher unmet need than higher income students, lower income students have also been found to be more sensitive to a given level of unmet need than high-income students. That is, for a certain level of unmet need, low-income students are more likely to be deterred from attending higher education than higher income students are (Kane 1994). Generally, it has been found that for each $150 increase in the net price of college attendance, the enrollments of students in the lowest income group decrease by about 1.8 percent (McPherson and Shapiro 1998).

Coping With the Price of Attending College

Students pay for their postsecondary education with a combination of savings, help from families and friends, financial aid, and work. Their use of work and borrowing are of particular interest because working may affect their academic opportunities and performance while enrolled, and borrowing may result in a substantial debt burden after they graduate.

Table 9.—Average net price and unmet need for dependent full-time, full-year undergraduates, by type of institution attended and family income quartile: 1995–96

Type of institution and family income quartile	Net price	Unmet need
Total	$ 8,100	$ 2,700
Public 4-year	7,300	2,000
Low	4,700	3,800
Lower middle	6,200	3,000
Upper middle	7,800	1,500
High	9,700	400
Private, not-for-profit 4-year	11,200	4,500
Low	7,200	6,200
Lower middle	7,800	4,900
Upper middle	10,900	4,500
High	16,400	3,000
Public 2-year	5,700	1,800
Low	4,200	3,200
Lower middle	6,000	2,700
Upper middle	6,400	600
High	6,600	100

NOTE: Averages include zero values.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study.

Students rely heavily on work to help pay for their education.

A large majority of undergraduates (79 percent, including both dependent and independent students) worked while enrolled during the 1995–96 academic year (figure 8). Among students who considered themselves primarily students working to pay their education expenses (50 percent of all students), the average number of hours worked per week was 25. Among students who considered themselves primarily employees taking classes (29 percent of all students), the average was 39 hours.

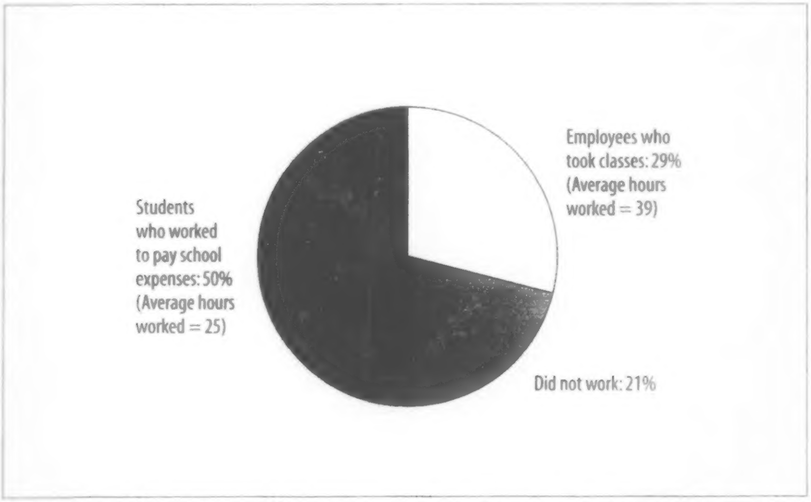
Working can have negative consequences on students' academic opportunities and performance.

In 1995–96, among undergraduates who considered themselves primarily students working to pay school expenses, the more they worked the more likely they were to report that their working limited their class schedule, reduced their choice of classes, and limited the number of classes they could take (table 10). Among those who worked full time while enrolled (35 or more hours per week), at least half reported each of these effects. In addition, 55 percent of dependent undergraduates who considered themselves primarily students and who worked full time reported that working negatively affected their grades.

Borrowing through federal loan programs increased considerably after income restrictions were removed.

Since unsubsidized Stafford loans were introduced in 1993–94, many students whose family income was too high to qualify for a subsidized loan have taken advantage of this opportunity to borrow to finance their education. In 1992–93, the last year before the eligibility rules changed, 41 percent of all seniors enrolled at public 4-year institutions had ever borrowed through a federal loan program; in 1995–96, 52 percent had done so (table 11). At private, not-for-profit 4-year institutions, the percentage of seniors who had ever borrowed increased from 49 to 56 percent.

Figure 8.—Percentage of undergraduate students who worked while enrolled: 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study.

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Borrowing increased, particularly among middle and upper income families.

Among dependent undergraduates at both public and private, not-for-profit 4-year institutions, the increase in borrowing was concentrated among students from families with incomes greater than about $30,000 (figure 9). Although some have linked the increased borrowing to rising tuitions,[6] there is no way to verify whether the increased borrowing represents more investment in postsecondary education or if middle and upper income families have simply shifted from using savings or work to borrowing. Overall, 52 percent of the seniors at public 4-year colleges in 1995–96 had ever borrowed from federal loan programs, and they carried an average of $11,000 in debt. For seniors at private, not-for-profit 4-year colleges, about 56 percent had ever borrowed and their average debt was $13,200 (Wirt et al., 62).

Students from higher income families do not appear to have used the increased borrowing opportunities to shift from public institutions to private, not-for-profit 4-year institutions. The percentage of dependent beginning postsecondary students from families with incomes of $60,000 or more attending private, not-for-profit institutions was about the same in 1989–90 (24 percent) and 1995–96 (25 percent) (Wirt et al. forthcoming, table 10-1).

Working a modest amount was positively associated with persistence, as was borrowing.

An analysis of persistence and attainment by 1989–90 beginning postsecondary students that controlled for a variety of factors showed that working 1–14 hours per week while enrolled was positively associated with persistence and attainment 5 years later, but that working full

Table 10.—Percentage of undergraduates who worked to help pay for school expenses and various effects of work on their studies, by average hours worked: 1995–96

Average hours worked per week while enrolled	Limited class schedule	Reduced class choices	Limited number of classes	Negatively affected their grades*
Total	40	36	30	37
1–15	22	16	15	17
16–20	31	28	24	34
21–34	42	38	32	46
35 or more	61	60	51	55

*Asked only of dependent students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study.

Table 11.—Percentage of students who borrowed during the academic year and who ever borrowed, by type of institution: 1992–93 and 1995–96

Type of institution	1992–93		1995–96	
	Borrowed in 1992–93	Ever borrowed	Borrowed in 1995–96	Ever borrowed
Public 4-year				
All students	25	36	35	47
Seniors	26	41	37	52
Private, not-for-profit 4-year				
All students	35	45	44	54
Seniors	35	49	43	56
Public 2-year	6	18	6	21

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 and 1995–96 National Postsecondary Student Aid Study.

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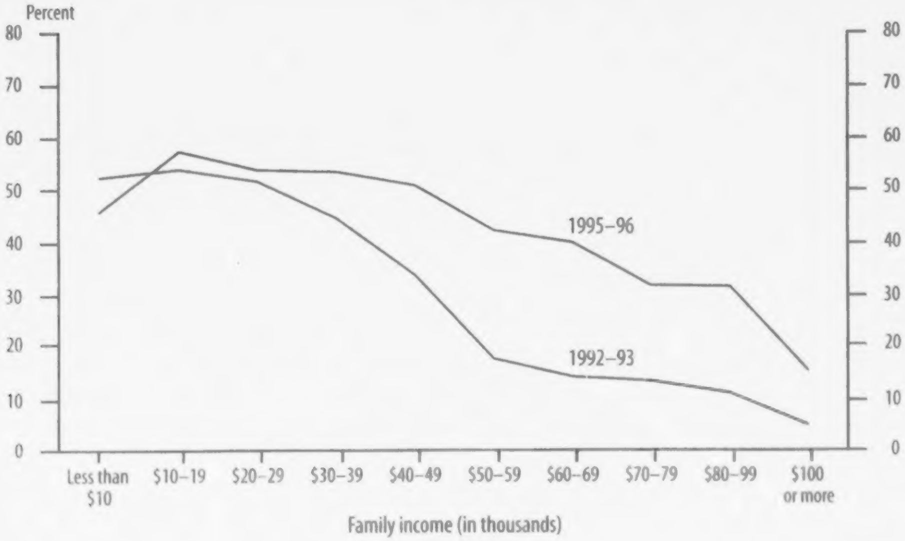
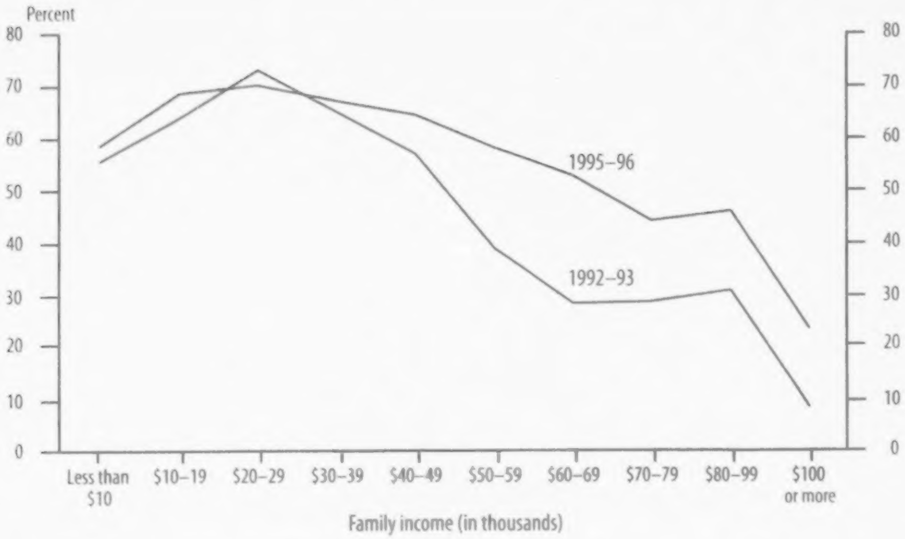
[6] See, for example, General Accounting Office (1998).

Figure 9.—Percentage of dependent, undergraduate students who ever borrowed from federal loan programs: 1992–93 and 1995–96



Public 4-year institutions



Private, not-for-profit 4-year institutions

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1992–93 and 1995–96 National Postsecondary Student Aid Study.

time was negatively associated with it. Borrowing was positively associated with persistence and attainment as well (Cuccaro-Alamin and Choy 1998). Students who borrowed were more likely than those who did not borrow to persist or attain within 5 years at each level of work considered except 1–14 hours (figure 10).

Findings from an analysis of 1995–96 undergraduates were similar, although outcome data are available only for 1 year so far. Among those seeking a bachelor's or associate's degree who considered themselves primarily students working to pay their expenses, those who worked 15 or fewer hours were more likely than students who worked more to attend for the full year, suggesting that working more than 15 hours may negatively affect persistence.

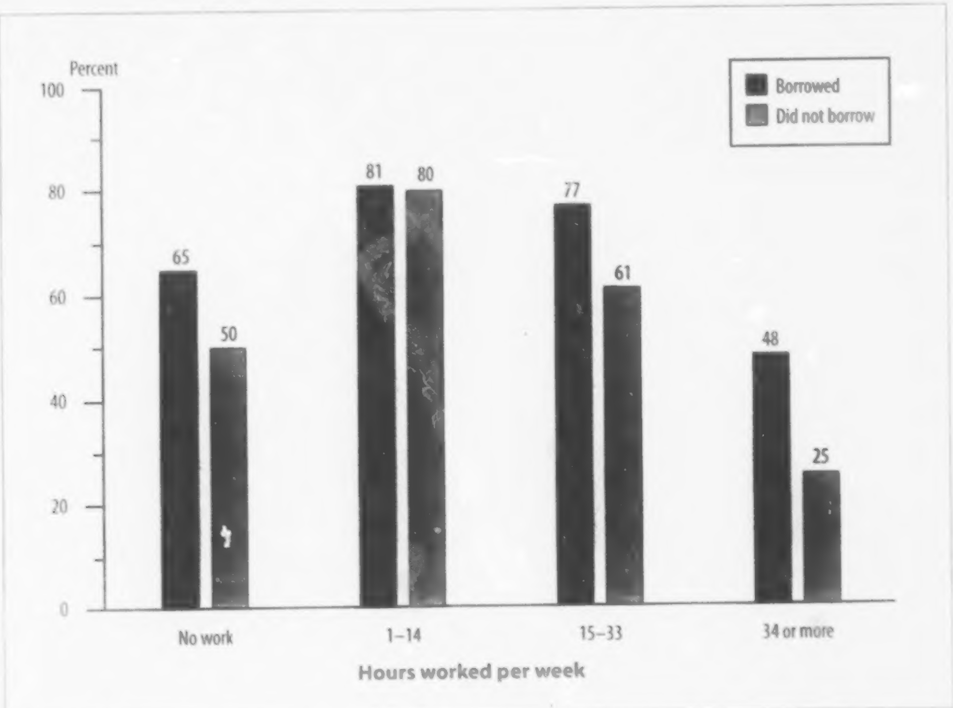
The students who considered themselves primarily students and worked 15 hours or fewer were also more likely to borrow and to borrow larger amounts, suggesting that students may substitute working for borrowing (Horn and Berktold 1998).

Summary

Enrollment in postsecondary education continues to rise, with increasing proportions of high school graduates going directly to college, and almost all expecting to enroll at some time in their lives. Low-income high school graduates are less likely to attend postsecondary education than their higher income peers. One reason is that they tend to be less well prepared, but even among the highest achieving high school students, low-income students are less likely to enroll, suggesting that finances may be a barrier for some. However, aspirations and expectations are important factors. When college-qualified low-income students take the necessary steps toward admission to a 4-year institution, they are just as likely as middle-income students to be accepted and to enroll.

College prices are rising faster than median family income. However, about half of all full-time, full-year undergraduates at 4-year institutions face tuition and fees of less than $4,000 per year, largely because of the subsidies that are provided to public institutions. Although financial aid

Figure 10.—Percentage of 1989–90 first-time beginning postsecondary students who attained a degree or were still enrolled as of spring 1994



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study, second follow-up (1994).

reduces net prices for low-income students, substantial unmet need remains.

Students and their families cope with the price of attending college using savings, income, borrowing, and work. While some work experience while enrolled may complement students' academic experiences and improve their employment prospects after graduation, full-time work appears to have some negative consequences. In addition, there is some evidence that borrowing to reduce the number of hours a student needs to work to no more than 15 hours per week may increase a student's chance of completing a degree.

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Data sources:

NCES: Beginning Postsecondary Students Longitudinal Study (BPS), base year (1990) and second follow-up (1994); 1992–93 and 1995–96 National Postsecondary Student Aid Study (NPSAS); National Education Longitudinal Study of 1988 (NELS:88), second follow-up (1992) and third follow-up (1994); National Longitudinal Study of the High School Class of 1972 (NLS), first follow-up (1974); High School and Beyond Study (HS&B), Senior Cohort, third follow-up (1986); *Digest of Education Statistics 1997* (NCES 98–015), tables 38 and 312; and *America's High School Sophomores: A Ten Year Comparison, 1980–1990* (NCES 93–087).

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For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education 1998* (NCES 98–013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education 1998 (http://nces.ed.gov/pubs98/condition98/index.html),* or
- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999–025).

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State Aid for Undergraduates in Postsecondary Education

John B. Lee and Suzanne B. Clery

This article was originally published as the Foreword and Highlights of a Statistical Analysis Report of the same name. The sample survey data are from the NCES National Postsecondary Student Aid Study (NPSAS).

Introduction

This report examines the differences among undergraduates who attended postsecondary institutions in states that provide different levels of state student financial aid. Specifically, the report describes students' aid types and sources, their price of attendance, and their personal characteristics. It examines the relationship between these variables and the undergraduates' probability of attending institutions in either a high or low state aid group.

The report uses data from the 1995–96 National Postsecondary Student Aid Study (NPSAS:96). NPSAS:96 is the fourth in a series of surveys conducted by the U.S. Department of Education, National Center for Education Statistics. NPSAS:96 represents students of all ages and backgrounds at all types of postsecondary institutions (from less-than-2-year institutions that provide short-term vocational training to 4-year colleges and universities) who were enrolled during the 1995–96 academic year. The NPSAS surveys provide information about the price of postsecondary education and how students pay that price.

The percentages and means presented in this report were produced using the NPSAS:96 Data Analysis System (DAS). The DAS is a microcomputer application that allows users to specify and generate their own tables from the NPSAS data. It produces the design-adjusted standard errors that are necessary for testing the statistical significance of differences shown in the tables.

Highlights

A major percentage of postsecondary education funding is contributed by states. States provide most of this support to institutions, but some is in the form of financial aid to students. Most (93 percent) of state student aid is in the form of grants. State funds may be awarded directly to students or used to reduce tuition in public institutions. The amount of student aid provided varies among states. Even though similarities may exist among states, each represents a unique set of circumstances. State politics, demographics, and historical traditions result in various higher education policies. This report divides states into two groups based on level of aid provided, and compares the high state aid group, states that provided $400 or more in financial aid per undergraduate, to the low state aid group, those that provided $100 or less in financial aid per undergraduate.* The following states were included in the high state aid group: Georgia, Illinois, Indiana, Minnesota, New Jersey, New Mexico, New York, Pennsylvania, Vermont, and Virginia. The low state aid group consisted of Alabama, Alaska, Arizona, Delaware, the District of Columbia, Hawaii, Idaho, Montana, Nebraska, Nevada, New Hampshire, North Dakota, South Dakota, Texas, Utah, and Wyoming.

The results suggest that students attending institutions located in the high state aid group were charged a higher average tuition than those in the low state aid group (table A). Undergraduates attending any one of the three major institutional sectors (public 4-year; private, not-for-profit, 4-year; and public less-than-4-year) in the high state aid group also paid higher tuition than did those in the low state aid group. This comparison provides a chance to evaluate what other student characteristics might be associated with attending institutions in the high state aid group or the low state aid group.

Institutional type

Undergraduates in the high state aid group were more likely to attend private, not-for-profit, 4-year institutions than were those in the low state aid group (table B). They also were less likely to attend public less-than-4-year institutions than were those in the low state aid group.

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*A third group, the middle state aid group, is not examined in this report.

Table A.—Average tuition and fees charged for undergraduates in the low and high state aid groups, by institutional type: 1996

	Low state aid group	High state aid group
Total	$ 2,099	$ 4,334
Institution type		
Public 4-year	2,622	3,415
Public less-than-4-year	498	921
Private, not-for-profit, 4-year	5,830	10,199
Private, not-for-profit, 2-year or less	2,308	4,032
Private, for-profit, 2-year or more	5,041	5,345
Private, for profit, less-than-2-year	5,599	6,804

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:96), Undergraduate Data Analysis System. (Originally published as table 6 on p. 22 of the complete report from which this article is excerpted.)

Table B.—Percentage distribution of undergraduates in the low and high state aid groups, by institutional type: 1996

	Low state aid group*	High state aid group*
Total	100.0	100.0
Institution type		
Public 4-year	36.9	33.2
Public less-than-4-year	46.9	34.6
Private, not-for-profit, 4-year	9.3	22.8
Private, not-for-profit, 2-year or less	0.9	1.5
Private, for-profit, 2-year or more	2.6	5.6
Private, for-profit, less-than-2-year	3.5	2.4

*The columns sum to 100 vertically for each selected characteristic.

NOTE: Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:96), Undergraduate Data Analysis System. (Originally published as table 14 on p. 29 of the complete report from which this article is excerpted.)

Student characteristics

Undergraduates attending institutions in the high state aid group were younger and more likely to be dependent than those in the low state aid group. Undergraduates in the high state aid group were also less likely to be married and have dependents compared with those attending institutions in the low state aid group.

In two instances, undergraduates attending institutions in the two state aid groups did not differ from one another statistically. The percentage of enrolled dependent undergraduates with family incomes of $20,000 or less is a good measure of the presence of low-income students in postsecondary education. There was no significant difference in the percentage of low-income undergraduates attending institutions in the high state aid group compared with those in the low state aid group. The percentage of low-income undergraduates who were white, non-Hispanic also did not differ significantly between the two state aid groups. In both cases, 73 percent of the undergraduates were white, non-Hispanic. The percentage of enrollment supplied by low-income students and the percentage of enrollment represented by minority students both provide indicators of student access. The information from the high and low state aid groups suggests that state student aid along with the associated institutional characteristics did not have a direct effect on the enrollment of low-income students or minority students.

Financial aid

Undergraduates in the high state aid group were more likely to have received student aid than were those in the low state aid group. On average, aid recipients in the high state aid group received $5,810 and those in the low state aid group received $3,869. Those attending institutions in the high state aid group were more likely to have received loans, grants, and work-study awards. Undergraduates in the high state aid group were also more likely to have received federal aid than were those in the low state aid group. Those in the high state aid group who received federal aid also received larger awards on average than those in the low state aid group.

Net tuition

Subtracting grant aid from tuition and fees results in net tuition. Undergraduates attending institutions in the high state aid group were charged an average tuition of $4,334 compared with $2,099 paid by those in the low state aid group. When all grant aid was subtracted, undergraduates in the high state aid group paid a mean net tuition of $2,947 compared with $1,553 paid by those in the low state aid group.

The mean net tuition paid by undergraduates attending public less-than-4-year institutions in the high state aid group was $639 compared with $316 paid by those in the low state aid group. However, undergraduates in the high state aid group did not pay a significantly higher net tuition in private, not-for-profit, 4-year institutions or public 4-year institutions.

Dependent undergraduates in every income category paid a higher net tuition if they attended institutions in the high state aid group than if they attended in the low state aid group. On average, dependent undergraduates with family incomes of less than $20,000 paid a mean net tuition of $2,648 in the high state aid group compared with $1,616 paid by those in the low state aid group. The only institutional sector in which dependent undergraduates with incomes of less than $20,000 paid a significantly higher net tuition in the high state aid group than in the low state aid group was public less-than-4-year institutions, $644 compared with $261.

Data sources: The 1995–96 National Postsecondary Student Aid Study (NPSAS:96); and the Integrated Postsecondary Education Data System (IPEDS), Institutional Characteristics datafile (1996–97) and Enrollment datafile (1996).

For technical information, see the complete report:

Lee, J.B., and Clery, S.B. (1999). *State Aid for Undergraduates in Postsecondary Education* (NCES 1999–186).

For details about NPSAS:96 methodology, see

Riccobono, J.A., Whitmore, R.W., Gabel, T.J., Traccarella, M.A., Pratt, D.J., and Berkner, L.K. (1997). *National Postsecondary Student Aid Study, 1995–96 (NPSAS:96) Methodology Report* (NCES 98–073).

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Current Funds Revenues and Expenditures of Degree-Granting Institutions: Fiscal Year 1996

Samuel Barbett and Roslyn A. Korb

This article was originally published as the Introduction and Summary Findings of an E.D. Tabs report of the same name. The universe data are from the NCES Integrated Postsecondary Education Data System (IPEDS).

Introduction

Since 1987, the Integrated Postsecondary Education Data System (IPEDS) Finance survey has collected information on the current funds revenues and expenditures of higher education institutions. Revenue data are collected by source of revenue, such as tuition and fees and state appropriations, while expenditure data are collected by purpose of expenditure, including instruction, research, and public service. Both revenues and expenditures are separable into two classes: education and general (E&G) and sales and services (i.e., auxiliary enterprises, hospitals, and independent operations). E&G revenues and expenditures are those that are intended for operating the educational, research, and public service missions[1] of the institution. Entities listed under sales and services are either ancillary to the mission of the institution or are essentially self-supporting operations, such as bookstores, dormitories, and hospitals (that is, the revenues of these entities support their operating expenditures). As part of current funds expenditures, total expenditures for salaries are also collected in each expenditure category that has associated personnel. Additionally, expenditures on scholarships and fellowships are collected by source in a separate schedule of the IPEDS Finance survey.

Change in universe definition between FY 1995 and FY 1996

This report presents data on revenues and expenditures of higher education institutions in the 50 states and the District of Columbia for fiscal year 1996. In FY 1996, higher education institutions were defined as postsecondary institutions that were eligible for Title IV[2] federal financial aid programs and that granted an associate's or higher degree. In FY 1995, higher education institutions were defined as those that were accredited at the college level by an agency recognized by the Secretary, U.S. Department of Education. This change in definition came about because the U.S. Department of Education no longer distinguishes postsecondary institutions based solely on their college accreditation status. The new definition resulted in an overall net gain of 7.5 percent in the number of institutions included in the higher education universe, with most of the additions being private, for-profit institutions. Altogether, the FY 1996 higher education universe consisted of 4,100 institutions.

Changes in aggregate financial statistics between FY 1995 and FY 1996

As table A indicates, the change in total current funds revenues between FY 1995 and FY 1996 for all higher education institutions in the nation was 4.68 percent. Of this percentage change, 0.30 percent was due to the change in universe. That is, if the universe definition had remained constant between FY 1995 and FY 1996, the change in current funds revenues would have been 4.38 percent. For current funds expenditures, the total change was 4.10 percent, of which 0.27 percent was due to the change in universe definition. While the change in universe definition had a negligible effect at the national level, it had a fairly large effect for some states and for some institutional sectors in some states. For example, almost half of the change in current funds revenues for all institutions in Arizona was due to the change in universe definition. In South Dakota, more than three-fourths of the change in current funds revenues was due to the change in universe definition. In Louisiana, all of the observed increase in current funds revenues was due to the change in the universe.

The change in universe definition did not seem to affect changes in the revenues or expenditures of public 4-year institutions at either the national or the state level, except in the District of Columbia. However, it did have an effect on changes in the aggregate financial statistics of both public 2-year institutions and private, non-profit 4-year institutions, particularly at the state level. Although the national increases in current funds revenues and expenditures of more than 5 percent in the public 2-year sector would have been about 4.5 percent had the universe not

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[1] Education and general revenues include tuition and fees; federal, state, and local appropriations; federal, state, and local grants and contracts; private gifts, grants, and contracts; endowment income; and sales and services of educational activities. Education and general expenditures include expenditures for instruction, research, public service, academic support, student services, institutional support, operation and maintenance of plant, scholarships and fellowships, and mandatory transfers from current funds.

[2] For an institution to be eligible to participate in Title IV financial aid programs, it must offer a program of at least 300 clock hours in length, have accreditation recognized by the U.S. Department of Education, have been in business for at least 2 years, and have signed a participation agreement with the Department.

Table A.—Total current funds revenues and expenditures of accredited institutions for fiscal year 1995 and Title IV eligible, degree-granting institutions for fiscal year 1996 in current dollars, by state

	Revenues in thousands				Expenditures in thousands			
State	Accredited 1994–95	Title IV eligible, degree-granting 1995–96	Total percent change	Percent change due to change in universe[1]	Accredited 1994–95	Title IV eligible, degree-granting 1995–96	Total percent change	Percent change due to change in universe[1]
50 states and DC	$189,120,570	$197,973,236	4.68	0.30	$182,968,610	$190,476,163	4.10	0.27
Alabama	3,120,468	3,204,482	2.69	0.15	2,958,406	3,045,170	2.93	0.02
Alaska	367,284	377,095	2.67	-0.18	356,408	370,425	3.93	-0.21
Arizona	2,083,810	2,331,052	11.86	5.64	1,985,153	2,198,161	10.73	4.49
Arkansas	1,255,123	1,389,148	10.68	2.29	1,211,426	1,329,954	9.78	2.26
California	21,732,186	22,549,732	3.76	0.80	20,863,000	21,799,355	4.49	0.75
Colorado	2,595,725	2,821,720	8.71	0.53	2,521,707	2,743,619	8.80	0.42
Connecticut	2,802,543	2,953,192	5.38	0.03	2,790,668	2,922,867	4.74	0.04
Delaware	532,222	542,204	1.88	0	502,080	525,789	4.72	0
District of Columbia	2,785,573	2,809,305	0.85	0.11	2,641,467	2,687,014	1.72	0.11
Florida	5,370,149	5,746,849	7.01	0.75	5,222,430	5,550,396	6.28	0.68
Georgia	4,669,631	4,942,445	5.84	-2.37	4,527,066	4,752,342	4.98	-2.39
Hawaii	756,909	690,079	-8.83	0.35	753,898	753,579	-0.04	0.31
Idaho	600,710	666,570	10.96	1.38	571,744	614,957	7.56	1.46
Illinois	9,556,668	9,710,846	1.61	-0.88	9,396,560	9,373,744	-0.24	-0.89
Indiana	4,208,421	4,122,807	-2.03	0.52	4,040,786	3,950,212	-2.24	0.49
Iowa	2,825,664	2,997,687	6.09	0.43	2,752,690	2,903,046	5.46	0.47
Kansas	1,773,217	1,866,147	5.24	0.83	1,770,163	1,818,735	2.74	0.77
Kentucky	2,140,650	2,266,777	5.89	0.06	2,012,000	2,145,812	6.65	0.01
Louisiana	2,594,795	2,665,476	2.72	2.76	2,533,954	2,626,966	3.67	2.61
Maine	659,247	691,286	4.86	0.49	641,301	677,124	5.59	0.57
Maryland	4,215,706	4,469,431	6.02	0	4,106,305	4,329,446	5.43	0
Massachusetts	8,165,627	8,678,187	6.28	0.22	7,973,635	8,443,824	5.90	0.21
Michigan	6,686,146	7,010,227	4.85	0.10	6,251,727	6,567,453	5.05	0.08
Minnesota	3,558,038	3,826,517	7.55	1.07	3,483,852	3,634,408	4.32	1.06
Mississippi	1,571,106	1,628,420	3.65	-0.05	1,488,741	1,565,599	5.16	-0.16
Missouri	3,998,763	4,250,780	6.30	0.61	3,734,201	4,008,936	7.36	0.60
Montana	438,398	480,672	9.64	0.95	426,961	462,617	8.35	0.89
Nebraska	1,453,813	1,569,492	7.96	0.14	1,396,632	1,482,836	6.17	0.12
Nevada	492,959	506,947	2.84	0.85	456,094	519,581	13.92	0.94
New Hampshire	912,258	966,569	5.95	-0.21	878,781	924,324	5.18	-0.11
New Jersey	4,372,092	4,532,700	3.67	-0.03	4,234,720	4,368,381	3.16	-0.02
New Mexico	1,363,775	1,428,887	4.77	1.49	1,321,071	1,381,143	4.55	1.56
New York	18,229,875	18,958,738	4.00	0.02	17,945,119	18,189,101	1.36	0.07
North Carolina	5,984,337	6,234,324	4.18	-0.03	5,736,166	5,977,241	4.20	-0.02
North Dakota	505,810	499,430	-1.26	0.64	494,080	488,773	-1.07	0.64
Ohio	7,016,352	7,185,199	2.41	0.46	6,856,454	6,917,081	0.88	0.42
Oklahoma	1,619,242	1,703,797	5.22	—	1,561,277	1,656,486	6.10	0.01
Oregon	2,191,029	2,313,205	5.58	0.70	2,121,873	2,219,576	4.60	0.69
Pennsylvania	11,081,716	11,619,129	4.85	-0.58	10,753,383	11,261,060	4.72	-0.41
Rhode Island	1,039,371	1,098,888	5.73	0	1,012,358	1,060,051	4.71	0
South Carolina	2,335,526	2,337,547	0.09	0	2,150,909	2,261,207	5.13	0
South Dakota	329,386	371,077	12.66	9.42	322,309	365,085	13.27	8.97
Tennessee	3,545,476	3,722,258	4.99	-0.16	3,453,161	3,582,234	3.74	-0.17
Texas	10,127,690	10,974,963	8.37	0.20	9,773,408	10,377,360	6.18	0.18
Utah	1,970,243	2,106,120	6.90	0.36	1,846,316	1,975,876	7.02	0.33
Vermont	623,906	667,869	7.05	2.54	604,678	639,878	5.82	0.85
Virginia	4,395,858	4,606,784	4.80	0.26	4,289,126	4,415,688	2.95	0.13
Washington	3,416,879	3,621,817	6.00	1.26	3,320,950	3,492,612	5.17	1.28
West Virginia	883,545	925,722	4.77	0.86	847,589	897,763	5.92	0.81
Wisconsin	3,859,473	4,020,558	4.17	0.07	3,768,350	3,916,369	3.93	0.07
Wyoming	305,181	312,080	2.26	0	305,475	304,908	-0.19	0

— Percent change within plus or minus 0.005 percent.

[1] The portion of the total percent change that can be attributed to the change from a higher education universe as defined by accreditation status to a higher education universe as defined by degree-granting status and Title IV eligibility.

NOTE: Pell Grants are excluded from revenues and expenditures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Finance" survey, 1994–95 and 1995–96. (Originally published as table 14 on p. 14 of the complete report from which this article is excerpted.)

changed, the effect of the change was quite profound in several states, such as Arkansas, Georgia, Louisiana, and South Dakota. The change in universe also had a significant effect on the aggregate financial statistics of private, non-profit 4-year institutions in such states as Alaska, Colorado, Illinois, Mississippi, and Oregon.

Current Funds Revenues in FY 1996

Revenues of public institutions

In FY 1996, public institutions received total current funds revenues of about $123.5 billion (table B). The largest source of revenues of public institutions was state appropriations, which accounted for about one-third of their total operating revenues. Tuition and fees, the second largest source of E&G revenues of public institutions, accounted for almost 19 percent of total current funds revenues. The relative shares of revenues accounted for by these two major sources of income tend to confirm public institutions' reliance on state funding. Additionally, public 2-year institutions rely heavily on local funding as well as state funding, with local appropriations accounting for more than 18 percent of their operating revenues.

Table B.—Total current funds revenues of Title IV eligible, degree-granting institutions, by level and control of institution: Fiscal year 1996 (In thousands)

Control	Total	4-year	2-year
Public	$123,501,152	$101,033,907	$22,467,245
Private	74,472,083	72,325,013	2,147,070
Non-profit	72,149,338	71,366,089	783,249
For-profit	2,322,745	958,924	1,363,821

NOTE: Data includes the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Finance" survey, 1995–96.

Revenues of private institutions

Private institutions, in contrast, are not, for the most part, state supported, and they rely heavily on revenues from students. In FY 1996, private institutions had total operating revenues of almost $74.5 billion (table B); tuition and fees constituted the largest source of these revenues. Private, non-profit institutions obtained more than 40 percent of their total operating revenues—and more than half of their E&G revenues—from tuition and fees. Among private, non-profit 2-year institutions, this reliance on tuition and fees was even greater, accounting for more than 60 percent of their operating revenues. This reliance was greater still among private, for-profit institutions, with tuition and fees accounting for 84 percent of the operating revenues of all for-profit institutions and almost 90 percent of the operating revenues of for-profit 4-year institutions.

While income from the federal government made up more than 14 percent of private, non-profit 4-year institutions' revenues, most of this (11.6 percent) was from restricted grants and contracts and from independent operations. Private gifts, grants, and contracts were another significant source of income for private, non-profit institutions, constituting more than 9 percent of their operating revenues. In private, non-profit 2-year institutions, this share rose to almost 12 percent, most of which (10 percent) was in the form of unrestricted revenues. Surprisingly, revenues from state grants and contracts accounted for about 4 percent of the operating revenues of private, non-profit 2-year institutions, and revenues from state and local governments constituted 7 percent of the revenues of private, for-profit 2-year institutions. These percentages might reflect state student financial aid, which would be reported in these revenue categories.

Current Funds Expenditures in FY 1996

Expenditures of 2- and 4-year public and private, non-profit institutions

While sources of revenue seem to be related to the control of the institution, expenditures seem to be more related to the level of the institution, at least among public and private, non-profit institutions. For example, 2-year public and private, non-profit institutions allocated a higher percentage of their total current funds expenditures to instruction in FY 1996 than did their 4-year counterparts. Two-year public institutions spent more than 45 percent of their total current funds expenditures on instruction, compared with the slightly less than 30 percent spent by 4-year public institutions. Two-year private, non-profit institutions spent almost one-third of their operating expenditures on instruction, compared with the almost 27 percent spent by 4-year private, non-profit institutions.

Similarly, 2-year public and private, non-profit institutions allocated significantly higher percentages of their operating expenditures to student services, institutional support, and plant operations and maintenance than did 4-year public and private, non-profit institutions. For example, two-year public and private, non-profit institutions spent more than 10 percent and 12 percent, respectively, of their total current funds expenditures on student services, compared with expenditures of about 4 percent in public and 5 percent in private, non-profit 4-year institutions. Two-year public and private, non-profit institutions also spent about 15 percent and 18 percent, respectively, on institutional support, compared with 8 percent and 10 percent spent by their 4-year counterparts.

The one expenditure category in which control seemed to be a major factor was scholarships and fellowships. Public institutions, regardless of level, spent only about 4 percent of their total current funds expenditures on scholarships and fellowships, while private, non-profit institutions spent about 11 percent on activities in this category.

Expenditures of private, for-profit institutions

Private, for-profit 2-year and 4-year institutions spent about the same percentage of their total expenditures on instruction (27 percent and 29 percent, respectively). However, private, for-profit 2-year institutions spent a much higher percentage of their total expenditures on scholarships and fellowships than did private, for-profit 4-year institutions (12 percent and 7 percent, respectively).

Salary expenditures

It is interesting to note that, as different as the expenditure patterns are between 2- and 4-year institutions, the percentage of expenditures going to salaries and wages falls within a fairly narrow range for a given expenditure function. Overall, salaries and wages constituted between 47 percent and 62 percent of total current funds expenditures, with 2-year public institutions at the high end and 4-year private, for-profit institutions at the low end. Of the major expenditure categories, salaries and wages constituted 65 to 73 percent of instructional expenditures, 49 to 63 percent of student services expenditures, and 35 to 57 percent of expenditures on institutional support.

Revenues by State

Revenues of public institutions by state

Examining differences by state in the relative importance of sources of revenues and in the allocation of expenditures can shed light on the support for, and the priorities of, higher education, particularly in the public sector.[3] In public institutions, for example, the percentage of total revenues from tuition and fees varied substantially across states. For instance, public 4-year institutions in Vermont received 42.9 percent of their total revenues from tuition and fees. Not only is this figure much higher than the average percentage of operating revenues that public 4-year institutions received from tuition and fees nationwide (18 percent), but it also exceeds the national average for private, non-profit 4-year institutions (41.4 percent). In New Mexico, on the other hand, public 4-year institutions received less than 10 percent of their total revenues from tuition and fees, and in California, public 2-year institutions received less than 10 percent of their total revenues from tuition and fees.

In general, public institutions in states that have a relatively high level of state and local funding tended to have a lower percentage of revenues from tuition and fees. There are some clear exceptions, however. Public 4-year institutions in Arizona, Maine, Massachusetts, New York, South Dakota, and West Virginia had higher-than-average shares of revenues both from tuition and fees and from state and local sources. Public 4-year institutions in Alabama, California, Iowa, Minnesota, Nebraska, New Mexico, South Carolina, Utah, and Washington all had lower-than-average shares of revenues from tuition and fees and from state and local sources as well. Among public 2-year institutions, only those in Arizona had higher-than-average shares of revenues from tuition and fees and also from state and local appropriations. Public 2-year institutions in Idaho, Illinois, Montana, Oklahoma, Oregon, and Texas had lower-than-average shares of revenues from tuition and fees as well as from state and local sources.

Revenues of private institutions by state

While it seems reasonable that the distribution of revenues by source in public institutions would vary by state, less anticipated is that the distribution of revenues by source in private, non-profit 4-year institutions would also vary by state. This does, however, appear to be the case. The percentage of revenues from tuition and fees in private, non-profit 4-year institutions ranged from a low of about 21 percent in Utah to a high of more than 78 percent in Arizona. In general, the percentage of revenues from state and local sources was low, with little variability among private, non-profit 4-year institutions, suggesting little state or local support for these institutions. In Florida, New Jersey, New York, and Texas, private, non-profit 4-year institutions received 5 percent or more of their total revenues from state and local sources, compared with a national average of 2.6 percent.

When looking at private, for-profit institutions by state, one of the most interesting aspects is the large variation in the size of this institutional sector. In many states, there are very few private, for-profit institutions and, as a result, their aggregated revenues and expenditures are very small. For example, in 29 states (including 4 states that do not have any degree-granting private, for-profit institutions), total revenues of private, for-profit institutions were less than

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[3] Interstate comparisons must be treated with caution, however. In some states, for example, certain costs of public institutions (e.g., faculty retirement costs) are paid through state sources rather than through institutional expenditures, while revenues from tuition and fees may go into a general fund rather than to the institution.

$15 million in each state. In 7 states, however, revenues in this sector totaled more than $100 million in each state. Among private, for-profit institutions, the percentage of revenues from tuition and fees ranged from 71 percent in Louisiana to 100 percent in Maryland and North Dakota. On average, private, for-profit institutions received about 5.1 percent of their total operating revenues from state and local sources, but in Connecticut, Minnesota, New Jersey, New York, and Pennsylvania, they received about 10 percent or more of their total revenues from state and local sources. In fact, private, for-profit institutions in New York received more than 20 percent of their total revenues from state and local sources.

Expenditures by State

Expenditures of public institutions by state

The distribution of expenditures by purpose in public 4-year institutions does not appear to be a function of their state location. The percentage of total expenditures that public 4-year institutions allocated to instruction ranged from a low of almost 20 percent in New Mexico to a high of 41 percent in Delaware. However, expenditures on instruction in public 4-year institutions were within 5 percent of the national average of 29.5 percent in 41 states. Expenditures on scholarships and fellowships in public 4-year institutions accounted for between 0.9 and 8.9 percent of total expenditures. In 27 states, expenditures on scholarships and fellowships were within 1 percent of the national average of 4.4 percent, and they were within 2 percent of the national average in 42 states. With some exceptions, public 4-year institutions with a relatively high share of expenditures on scholarships and fellowships tended to be in states in which public institutions received a high percentage of their total revenues from tuition and fees.

The percentage of total expenditures that public 2-year institutions allocated to instruction seemed to vary more across states than did the expenditures of public 4-year institutions for this purpose. This percentage ranged from a low of 24 percent in Vermont to a high of 61 percent in Wisconsin. Even among public 2-year institutions, however, expenditures on instruction were within 5 percent of the national average of 45.2 percent in 35 states. The percentage of total expenditures that public 2-year institutions allocated to scholarships and fellowships averaged 3.6 percent nationwide and did not exceed 8 percent except in the states of New York and Vermont.[4]

Expenditures of private institutions by state

Although expenditures on instruction among private, non-profit 4-year institutions ranged from a low of about 20 percent in Alaska to a high of 43 percent in Nebraska, these institutions allocated between 25 percent and 30 percent of their total expenditures to instruction in 25 states. The range of allocations to scholarships and fellowships among private, non-profit 4-year institutions was fairly broad, from a low of about 4 percent in Utah to a high of more than 30 percent in North Dakota. In addition, private, non-profit 4-year institutions in 22 states allocated 15 percent or more of their total expenditures to scholarships and fellowships. This compares with a national average of 11.5 percent for private, non-profit 4-year institutions.

Nationally, private, for-profit institutions allocated about 28 percent of their total expenditures to instruction and about 10 percent to scholarships and fellowships. Among these institutions, expenditures on instruction varied widely from state to state, ranging from about 16 percent of total current funds expenditures in Wyoming to more than 50 percent in Nebraska and Maryland. Again, however, private, for-profit institutions in 27 states allocated within 5 percent of the national average of 27.6 percent of their total expenditures to instruction. Significant variation in the percentage of total expenditures allocated to scholarships and fellowships in private, for-profit institutions is fairly evident. In only six states did for-profit institutions allocate within 2 percent of the national average of 9.6 percent for scholarships and fellowships. As might be expected, expenditures on scholarships and fellowships seem to be related to the level of revenues from state and local sources, with some exceptions, such as in Georgia, Louisiana, South Dakota, and Tennessee.

Data source: The 1994–95 and 1995–96 NCES Integrated Postsecondary Education Data System (IPEDS) Finance survey.

For technical information, see the complete report:

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To obtain the complete report (NCES 1999–161), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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[4] Vermont has only one degree-granting 2-year public institution.

PUBLIC, STATE, AND FEDERAL LIBRARIES

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Public Libraries in the United States: Fiscal Year 1996

Adrienne Chute and P. Elaine Kroe

The information in this article was originally published in the Introduction and Highlights of the E.D. Tabs report of the same name. The universe data are from the Public Libraries Survey.

Introduction

The 40 tables in this report summarize information about public libraries in the 50 states and the District of Columbia for state fiscal year 1996.[1] These data were collected through the ninth Public Libraries Survey (PLS). The survey is conducted annually by the National Center for Education Statistics (NCES) through the Federal-State Cooperative System (FSCS) for Public Library Data. FSCS is a cooperative system through which states and outlying areas submit individual public library data to NCES on a voluntary basis. NCES aggregates the data to provide the state and national totals presented in this report. Data are imputed for nonresponding libraries.

This report includes information about public library service measures, such as reference transactions, public service hours, interlibrary loans, circulation, library visits, children's program attendance, and circulation of children's materials. It also includes information about the number, type, legal basis, administrative structure, operating income and expenditures, staffing, and collections of public libraries, as well as summary information about the number and type of public library service outlets.

Number of Public Libraries and Their Service Outlets and Legal Basis

Number and population served

There were 8,946 public libraries (administrative entities) in the 50 states and the District of Columbia in FY 1996. Eleven percent of the public libraries served nearly 71 percent of the population of legally served areas in the United States; each of these public libraries had a legal service area population of 50,000 or more.

Administrative structure and service outlets

Over 80 percent of public libraries had one single direct service outlet (an outlet that provides service directly to the public). Just under 20 percent had more than one direct service outlet. This report includes information about three types of public library service outlets: branch library outlets, central library outlets,[2] and bookmobile outlets. A total of 1,480 public libraries (over 16 percent) had one or more branch library outlets, with a total of 7,124 branches. The total number of central library outlets was 8,923.[3] Thus, the total number of stationary outlets (central library outlets plus branch library outlets) was 16,047. Nine percent of public libraries had one or more bookmobile outlets, with a total of 966 bookmobiles.

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[1] However, some public libraries in seven states (Illinois, Maine, Michigan, Nebraska, Pennsylvania, Texas, and Vermont) reported data for FY 1994 or FY 1995.

Legal basis and interlibrary relationships

Nearly 54 percent of public libraries were part of a municipal government, almost 12 percent were part of a county or parish, and nearly 6 percent had multijurisdictional legal basis under an intergovernmental agreement. Almost 11 percent were nonprofit association or agency libraries, over 3 percent were part of a school district, and 8 percent were separate government units known as library districts. Over 1 percent were combinations of academic and public libraries or of school and public libraries. About 6 percent reported their legal basis as "other."

Nearly 70 percent of public libraries were members of a system, federation, or cooperative service, while over 28 percent were not. Over 2 percent served as the headquarters of a system, federation, or cooperative service.

Operating Income and Expenditures

Operating income

In FY 1996, over 78 percent of public libraries' total operating income of about $5.9 billion came from local sources, over 12 percent from the state, 1 percent from federal sources, and close to 9 percent from other sources, such as gifts and donations, service fees, and fines.

Nationwide, total per capita[3] operating income for public libraries was $23.37. Of that, $18.26 was from local sources, $2.84 from state sources, $.23 from federal sources, and $2.03 from other sources. Per capita operating income from local sources was under $3.00 for close to 12 percent of public libraries, $3.00 to $14.99 for over 48 percent of libraries, $15.00 to $29.99 for over 27 percent, and $30.00 or more for 13 percent.

Operating expenditures

Total operating expenditures for public libraries were over $5.5 billion in FY 1996. Of this, over 64 percent was expended for paid staff and just over 15 percent for the library collection.

Close to 38 percent of public libraries had operating expenditures of less than $50,000, over 38 percent expended between $50,000 and $399,999, and close to 24 percent expended $400,000 or more. The average U.S. per capita operating expenditure for public libraries was $21.98. The highest average per capita operating expenditure in the 50 states was $38.19 and the lowest was $9.42.

Staffing and Collections

Staffing

Public libraries had a total of 117,812 paid full-time-equivalent (FTE) staff. Of these, over 23 percent were librarians with the ALA-MLS,[4] and nearly 10 percent were librarians by title but did not have the ALA-MLS. Close to 67 percent of staff were reported as "other."

Collections

Nationwide, public libraries had over 711 million books and serial volumes in their collections, or 2.8 volumes per capita. By state, the number of volumes per capita ranged from 1.5 to 5.2. In addition to printed materials, public libraries nationwide had collections of over 25 million audio materials and over 13 million video materials.

Services

Circulation

In FY 1996, total nationwide circulation of public library materials was over 1.6 billion, or 6.5 per capita. The highest statewide circulation per capita was 12.4 and the lowest was 2.8.

Other service measures

Nationwide,

- over 10.5 million library materials were loaned by public libraries to other libraries;
- reference transactions in public libraries totaled over 284 million, or 1.1 per capita; and

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[2] A central library outlet is either a single-outlet library or a library that is the operational center of a multiple-outlet library.

[3] Per capita figures are based on the total unduplicated population of legal service areas in the states, not on the total population of the states.

[4] ALA-MLS is defined as a master's degree from a graduate library education program accredited by the American Library Association (ALA).

- library visits in public libraries totaled over 1 billion, or 4 per capita.

Children's Services

Nationwide, circulation of children's materials was nearly 571 million, or close to 35 percent of total circulation. Attendance at children's programs was over 42 million.

Data source: The FY 1996 Public Libraries Survey (PLS).

For technical information, see the complete report:

Chute, A., and Kroe, P.E. (1999). *Public Libraries in the United States: FY 1996* (NCES 1999–306).

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Measuring Inflation in Public Libraries: A Comparison of Two Approaches, the Input Cost Index and the Cost of Services Index

Jay C. Chambers and Robert Vergun

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the American Library Association (ALA) Survey of Librarian Salaries and the U.S. Census Bureau's County and City Data Book, and the universe data are from the NCES Public Libraries Survey (PLS).

In an age of tight federal, state, and local government budgets, it is essential for officials in public agencies to have full and accurate information about the cost of providing public services. Public libraries are among those agencies that purchase a wide range of goods and services, and like other public agencies, they need to understand their costs of operation and justify requests for increases in funding. Over time, increases in costs result, at least in part, from inflationary pressures that affect the economy in general. Therefore, to allow meaningful comparisons of library revenue and expenditures over time, it is important to adjust reported dollars by an appropriate inflation index. However, use of the standard Consumer Price Index (CPI) for this purpose is insufficient because libraries purchase different goods from those purchased by typical households.

One source of information on public library expenditures is the Public Libraries Survey, conducted annually by the National Center for Education Statistics (NCES). This survey utilizes data collected from each state through the Federal-State Cooperative System (FSCS) for Public Library Data. However, because these data are not indexed for inflation, the true impact of inflation on public libraries cannot be assessed. For example, one cannot determine whether the increases in total library revenue that have been shown by FSCS data in recent years led to increases in services or were consumed by inflation.

Two Approaches to Developing an Index of Inflation for Public Libraries

This report presents two approaches to measuring inflation faced by public libraries:

- an approach based on a fixed market basket (FMB) of the prices of library inputs (i.e., prices of goods and services purchased by libraries, including personnel), which yields a public library *input cost index* (PLICI); and
- an approach based on an econometric model of library services and costs, which yields a public library *cost of services index* (PLCSI).

The PLICI represents essentially a weighted average of the series of public library input prices, while the PLCSI places emphasis on the cost of producing library services. The report presents estimates of public library inflation derived from each approach and compares each in terms of its advantages and disadvantages.

Fixed-market-basket approach

The FMB approach produces an index that is a weighted average of the indexes of the prices of library inputs. This approach uses a methodology similar to that employed in the development of the standard CPI. The standard CPI is essentially an index of the differences in the prices of consumer goods and services between two points in time, weighted by the typical basket of goods and services consumed by households during a base time period. Similarly, the input cost index developed in this report, using the FMB approach, is an index of the differences in the price of library inputs between two points in time, weighted by the typical basket of inputs purchased by libraries. This approach relies on a variety of data sources for the various price data that make up the PLICI. Using this methodology, one can determine a weighted average rate of inflation in the prices of these library inputs, where the weights used to aggregate these individual inputs are the average proportions of public library budgets (i.e., the budget shares) allocated to each input category. These weights or budget shares simply measure the importance of each input in the overall budget for public library operations. This report refers to the inflation index derived using the FMB as the PLICI.

Public library cost of services model

This approach is based on a model of public library services similar to models used by economists to analyze the costs of production in any goods or service industry.[1] It is represented by an econometric model of the systematic patterns of variation in library expenditures over time. In addition, the model controls for cost variations associated with changes in the level of library services such as circulation, reference transactions, and library visits, as well as differences in geographic location. By controlling for variations in various types and levels of services rather than holding input levels fixed, this econometric model permits the inflation rates to take into account the effects of input substitutions and technological changes in the cost of doing business for libraries. The phrase "input substitutions" refers to the notion that those in charge of library operations will substitute away from utilizing relatively more expensive inputs toward the use of less expensive inputs over time to maintain service levels at the minimum possible cost. The phrase "technological changes" involves improvements in service levels (or reductions in costs with no diminution in services) that may arise, for example, from the use of computer technology or other time-saving procedures or devices. This cost of services model primarily uses a single data source—the NCES FSCS data on public libraries. This report refers to the inflation index derived using this cost of services model as the PLCSI.

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[1] See, for example, Mansfield (1975), pp. 118–232.

Comparing the Fixed-Market-Basket Approach and the Cost of Services Model

Each approach involves certain assumptions about the way public libraries operate, and each contains limitations in the way cost data may be interpreted. In addition, the data requirements for using each model differ significantly, and the quality of the data used in calculating each varies considerably. A major difference between the two approaches is the clarity of what underlies the two indexes. Using the FMB model to derive the PLICI, one can see and more easily understand the data components, such as the cost indexes of the various inputs and the budget shares used to aggregate them into a single index. Moreover, this methodology may be familiar to those who are aware of the CPI, which has been published by the U.S. Bureau of Labor Statistics for decades. In contrast, deriving the PLCSI relies on the analytical tools of the economist, which may appear to the noneconomist as a bit of a black box. Yet economists have used the cost model for decades to analyze production and costs in many industries, including library services (e.g., see Chressanthis 1995 and DeBoer 1992).

Another major difference between the two indexes is that the PLICI represents essentially a weighted average of the series of public library input prices, while the PLCSI places emphasis on the cost of producing library services. As such, the PLCSI attempts to account for the patterns of variation in changes (e.g., improvements) in the level of library services, as well as differences in geographic location. By focusing on the types and levels of library services, the inflation rates produced by the PLCSI reflect input substitutions in response to relative price changes or changes in technology over time, which affect the way library inputs are combined to produce services. The inflation rates produced by the PLICI do not account for these factors.

It is worth noting that the PLCSI, by controlling for various types and levels of services in the way that it does, addresses at least some of the problems that economists have contended create bias in the CPI and other fixed-basket price indexes. A recent paper by Moulton (1996) addresses some of these problems with regard to the construction of the CPI.

A Comparison of Public Library Inflation Rates Using Each Approach

During the period from 1989–90 to 1992–93, the PLICI created by the American Institutes for Research (PLICIa)[2] shows an average annual rate of inflation of 4.3 percent in the prices of library inputs. In marked contrast, the cost-based PLCSI exhibits an average annual inflation rate of 3.9 percent during that same period. For comparison purposes, household consumer prices rose at an average annual rate of 3.9 percent, while producer prices rose at 2.4 percent over this same period.[3]

The PLICIa estimates of annual inflation rates based upon the FMB approach show roughly similar patterns of decline from 1989–90 to 1992–93 as annual inflation rates based upon the CPI. This is not surprising since several components of the CPI were used to calculate the input cost index of various library expenditure categories using the FMB approach. For example, the input cost index of the major library expenditure category, books and periodicals, is based upon the CPI data.

Inflation rates derived from the cost of services model show lower rates of inflation than those derived using the FMB approach. This is consistent with the expectation that the cost of services model should control better for increases in the costs of library services due to improvements in the level of services or technological change.[4]

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[2] The full report examines two FMB-based indexes: one (PLICIa) was developed by the American Institutes for Research specifically for the purposes of this report; the other (PLICIb) was developed earlier by Research Associates of Washington (Halstead 1995).

[3] U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index, 1989–93; and Producer Price Index (PPI), 1989–93. The CPI is a weighted average of a series of price indexes corresponding to the goods and services purchased by the typical urban household. The PPI includes a series of the goods and services typically purchased by producers involved in the production of final goods and services for consumers.

Implications for Further Research

This report provides suggestions about further data collection and research that would be useful in exploring alternative ways of developing a PLICI. The kinds of econometric models used in the development of the PLCSI have the potential to address the factors underlying differences in available library services. This can be accomplished by examining the systematic relationship between library outcomes or services in local communities in relation to variations in local community characteristics (e.g., income and education levels of the local community) and the federal and state grants on library spending and service levels.

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Data sources: The NCES Public Libraries Survey (PLS), FY 1989–93; the American Library Association (ALA) Survey of Librarian Salaries, 1988–94; the U.S. Census Bureau's *County and City Data Book, 1990* (1989 data); and other previously published data, as cited in the text.

For technical information, see the complete report:

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To obtain the complete report (NCES 1999–326), call the toll-free ED Pubs number (877-433-7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202-512-1800).

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[4] For example, as in the rest of the economy, the demand for skilled workers might have increased relative to unskilled workers. Therefore, total employment of library personnel might have fallen, but those who remain might command higher salaries. These remaining librarians might have the necessary skills (e.g., computer skills) that are required to run a modern library. The FMB approach would not adjust for the increase in the skill level of librarians, and increases in library salaries might in part result from higher quality library personnel. This would upwardly bias the FMB measure of inflation for libraries.

State Library Agencies: Fiscal Year 1997

P. Elaine Kroe

This article was originally published as the Introduction and Highlights of an E.D. Tabs report of the same name. The universe data are from the State Library Agencies (STLA) Survey.

Introduction

This report contains data on state library agencies in the 50 states and the District of Columbia for state fiscal year 1997. The data were collected through the State Library Agencies (STLA) Survey, the product of a cooperative effort between the Chief Officers of State Library Agencies (COSLA), the U.S. National Commission on Libraries and Information Science (NCLIS), and the National Center for Education Statistics (NCES). The FY 1997 STLA Survey is the fourth in the series.

Background

A state library agency is the official agency of a state charged by the law of that state with the extension and development of public library services throughout the state, which has adequate authority under law of the state to administer state plans in accordance with the provisions of the Library Services and Construction Act (LSCA) (P.L. 101–254, as amended). Beyond these two essential roles, these agencies vary greatly. They are located in various departments of state government and report to different authorities. They are involved in various ways in the development and operation of electronic information networks. They provide different types of services to different types of libraries.

STLAs are increasingly receiving broader legislative mandates affecting libraries of all types in the states (i.e., public, academic, school, special, and library systems). For example, their administrative and developmental responsibilities under LSCA Title III (Interlibrary Cooperation and Resource Sharing) affect the operation of thousands of public, academic, school, and special libraries in the nation. STLAs provide important reference and information services to state government and administer the state library and special operations such as state archives, libraries for the blind and physically handicapped, and the State Center for the Book. The STLA may also function as the state's public library at large, providing service to the general public and state government employees. This report provides information on the variety of roles being played by such agencies and the various combinations of fiscal, human, and informational resources invested in such work.

Purpose of survey

The STLA Survey provides state and federal policymakers, researchers, and other interested users with descriptive information about STLAs in the 50 states and the District of Columbia. The survey also collects data on STLA services and financial assistance to local public libraries which, when added to the data collected by the NCES Public Libraries Survey, will help complete the national picture of public library service. NCES also conducts surveys of academic, school, and federal libraries, and of library cooperatives. Together, these data collections will contribute to a comprehensive national profile of libraries and information services.

Congressional authorization

The STLA Survey is conducted in compliance with the NCES mission "to collect, analyze, and disseminate statistics and other information related to education in the United States…," P.L. 103–382, Title IV, National Education Statistics Act of 1994, Sec. 404 (a).

Highlights

Governance

Nearly all state library agencies (48 states and the District of Columbia) are located in the executive branch of government. Of these, over 65 percent are part of a larger agency, the most common being the state department of education. In two states, Arizona and Michigan, the agency reports to the legislature.

Allied and other special operations

A total of 16 state library agencies reported having one or more allied operations. Allied operations most frequently linked with a state library agency are the state archives (10 states) and the state records management service (11 states). Fifteen state agencies contract with public or academic libraries in their states to serve as resource or reference/information service centers. Eighteen state agencies operate a State Center for the Book.[1]

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[1] The State Center for the Book, which is part of the Center for the Book program sponsored by the Library of Congress, promotes books, reading, and literacy, and is hosted or funded by the state.

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Electronic network development

All state library agencies plan or monitor electronic network development; 42 states and the District of Columbia operate such networks; and 46 states and the District of Columbia develop network content. All 50 states are involved in facilitating library access to the Internet in one or more of the following ways: training library staff or consulting in the use of the Internet; providing a subsidy for Internet participation; providing equipment needed to access the Internet; providing access to directories, databases, or online catalogs; or managing gopher/Web sites, file servers, bulletin boards, or listservs.

Library development services

Services to public libraries. Every state library agency provides these types of services to public libraries: administration of LSCA (Library Services and Construction Act) grants, collection of library statistics, and library planning, evaluation, and research. Nearly every state library agency provides consulting services and continuing education programs. Services to public libraries provided by at least three-quarters of state agencies include administration of state aid, interlibrary loan referral services, library legislation preparation or review, literacy program support, reference referral services, state standards or guidelines, summer reading program support, and union list development. Over three-fifths of state agencies provide Online Computer Library Center (OCLC) Group Access Capability (GAC) to public libraries and statewide public relations or library promotion campaigns. Less common services to public libraries include accreditation of libraries, certification of librarians, cooperative purchasing of library materials, preservation/conservation services, and retrospective conversion of bibliographic records.

Services to academic libraries. At least two-thirds of state library agencies report the following services to the academic library sector: administration of LSCA Title III grants, continuing education, interlibrary loan referral services, reference referral services, and union list development. Less common services to academic libraries include cooperative purchasing of library materials, literacy program support, preservation/conservation, retrospective conversion, and state standards or guidelines. No state library agency accredits academic libraries; only Washington State certifies academic librarians.

Services to school library media centers. At least two-thirds of all state library agencies provide continuing education, interlibrary loan referral services, and reference referral services to school library media centers (LMCs). Services to LMCs provided by at least half of all state agencies include administration of LSCA Title III grants, consulting services, and union list development. Less common services to LMCs include administration of state aid, cooperative purchasing of library materials, and retrospective conversion. No state library agency accredits LMCs or certifies LMC librarians.

Services to special libraries. Over two-thirds of state agencies serve special libraries[2] through administration of LSCA grants, consulting services, continuing education, interlibrary loan referral, reference referral, and union list development. Less common services to special libraries include administration of state aid, cooperative purchasing of library materials, and summer reading program support. Only Nebraska accredits special libraries and only Washington State certifies librarians of special libraries.

Services to systems. At least three-fifths of state agencies serve library systems[3] through administration of LSCA grants, consulting services, continuing education, interlibrary loan referral, library legislation preparation or review, reference referral, and library planning, evaluation, and research. Accreditation of systems is provided by only six states, and certification of librarians by only seven states.

Service outlets

State library agencies reported a total of 153 service outlets. Main or central outlets and other outlets (excluding bookmobiles) each accounted for 47.1 percent of the total, and bookmobiles represented 5.9 percent of the total.

Collections

The number of books and serial volumes held by state library agencies totaled 22.4 million, with New York accounting for the largest collection (2.4 million). Five state agencies had book and serial volumes of over one million. In other states, these collections ranged from 500,000 to one million (12 states); 200,000 to 499,999 (10 states); 100,000 to 199,999 (10 states); 50,000 to 99,999 (6 states); and under 50,000 (6 states). The state library agency in

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[2] A special library is a library in a business firm, professional association, government agency, or other organized group; a library that is maintained by a parent organization to serve a specialized clientele; or an independent library that may provide materials or services, or both, to the public, a segment of the public, or other libraries. Scope of collections and services are limited to the subject interests of the host or parent institution. Special libraries include libraries in state institutions.

[3] A system is a group of autonomous libraries joined together by formal or informal agreements to perform various services cooperatively, such as resource sharing, communications, etc. Systems include multitype library systems and public library systems, but not multiple outlets under the same administration.

Maryland does not maintain a collection, and the District of Columbia does not maintain a collection in its function as a state library agency.

The number of serial subscriptions held by state library agencies totaled over 84,000, with New York holding the largest number (over 14,300). Ten state agencies reported serial subscriptions of over 2,000. In other states, these collections ranged from 1,000 to 1,999 (6 states), 500 to 999 (18 states), 100 to 499 (13 states), and under 100 (one state). The state library agencies in Maryland and the District of Columbia do not maintain collections.

Staff

The total number of budgeted full-time-equivalent (FTE) positions in state library agencies was 3,762. Librarians with ALA-MLS degrees[4] accounted for 1,206 of these positions, or 32.1 percent of total FTE positions. Rhode Island reported the largest percentage (57.1) of ALA-MLS librarians, and Virginia reported the lowest (16.3 percent).

Income

State library agencies reported a total income of $847.1 million in FY 1997 (83.1 percent from state sources, 15.4 percent from federal, and 1.5 percent from other sources). Of state library agency income received from state sources, over $477 million (67.8 percent) was designated for state aid to libraries. Seven states had over 75 percent of their income from state sources set aside for state aid. Georgia had the largest percentage of state library agency income set aside for state aid (97.4 percent). Six states and the District of Columbia targeted no state funds for aid to libraries. Hawaii, Iowa, South Dakota, Vermont, Washington, and the District of Columbia had all of their state income set aside for operation of the state agency.[5]

Expenditures

State library agencies reported total expenditures of $822.2 million. The largest percentage (83.6 percent) was from state funds, followed by federal funds (15.3 percent) and other funds (1.1 percent). In five states, over 90 percent of total expenditures were from state sources. These states were Georgia (94.7 percent), Massachusetts (93.5 percent), Illinois (92.4 percent), New York (92.0 percent), and Maryland (91.9 percent). Utah had the lowest percentage of expenditures from state sources (59.2 percent).

Almost 70 percent of total state library expenditures were for financial assistance to libraries, with the largest percentages expended on individual public libraries (53.1 percent) and public library systems (16.4 percent). Most of the expenditures for financial assistance to libraries were from state sources (86.2 percent), while 13.6 percent were from federal sources.

Fifteen state library agencies reported expenditures for allied operations. These expenditures totaled over $24.0 million and represented 2.9 percent of total expenditures by state library agencies. Of states reporting such expenditures, Texas had the highest expenditure ($3.3 million) and Vermont the lowest ($398,000).[6]

Twenty-seven state library agencies reported a total of over $16.7 million in grants and contracts expenditures to assist public libraries with state education reform initiatives or the National Education Goals. The area of adult literacy accounted for the largest proportion of such expenditures (47.7 percent), followed by the areas of lifelong learning (34.9 percent) and readiness for school (17.4 percent). Three state agencies (Nebraska, Oregon, and Pennsylvania) focused such expenditures exclusively on readiness for school projects, and five state agencies (Georgia, Kansas, New Jersey, Oklahoma, and Utah) focused their expenditures exclusively on adult literacy projects. In four state agencies (Connecticut, Indiana, Michigan, and South Carolina), over two-thirds of such expenditures were for lifelong learning projects.

Data source: The FY 1997 State Library Agencies (STLA) Survey.

For technical information, see the complete report:

Kroe, P.E. (1999). *State Library Agencies: Fiscal Year 1997* (NCES 1999–304).

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For questions about content, contact P. Elaine Kroe (*Patricia_Kroe@ed.gov*).

To obtain the complete report (NCES 1999–304), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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[4] These are paid librarians with Master of Library Science degrees from programs accredited by the American Library Association.

[5] The District of Columbia Public Library functions as a state library agency and is eligible for federal LSCA funds in this capacity. The state library agency in Hawaii is associated with the Hawaii State Public Library System and operates all public libraries within its jurisdiction. The state funds for aid to libraries for these two agencies are reported on the NCES Public Libraries Survey, rather than on the STLA Survey, because of the unique situation of these two state agencies and in order to eliminate duplicative reporting of these data.

[6] Although Alaska reported allied operations, the expenditures for such operations are not from the state library agency budget.

INTERNATIONAL STATISTICS

The TIMSS Videotape Classroom Study: Methods and Findings From an Exploratory Research Project on Eighth-Grade Mathematics Instruction in Germany, Japan, and the United States
James W. Stigler, Patrick Gonzales, Takako Kawanaka, Steffen Knoll, and Ana Serrano 109

The TIMSS Videotape Classroom Study: Methods and Findings From an Exploratory Research Project on Eighth-Grade Mathematics Instruction in Germany, Japan, and the United States

James W. Stigler, Patrick Gonzales, Takako Kawanaka, Steffen Knoll, and Ana Serrano

This article was originally published as the Executive Summary of the Research and Development Report of the same name. The sample survey data are from the Videotape Classroom Study, part of the 1994–95 Third International Mathematics and Science Study (TIMSS).

Important Note

Research and Development Reports are intended to

- Share studies and research that are developmental in nature.
- Share results of studies that are on the cutting edge of methodological developments.
- Participate in discussions of emerging issues of interest to researchers.

These reports present results or discussion that do not reach definitive conclusions at this point in time, either because the data are tentative, the methodology is new and developing, or the topic is one on which there are divergent views. Therefore, the techniques and inferences made from the data are tentative and are subject to revision.

This report presents the methods and preliminary findings of the Videotape Classroom Study, a video survey of eighth-grade mathematics lessons in Germany, Japan, and the United States. Part of the Third International Mathematics and Science Study (TIMSS), this exploratory research project is the first study to collect videotaped records of classroom instruction—in any subject—from national probability samples.

Objectives

The Videotape Classroom Study had four goals:

- Provide a rich source of information regarding what goes on inside eighth-grade mathematics classes in the three countries.
- Develop objective observational measures of classroom instruction to serve as valid quantitative indicators, at a national level, of teaching practices in the three countries.
- Compare actual mathematics teaching methods in the United States and the other countries with those recommended in current reform documents and with teachers' perceptions of those recommendations.
- Assess the feasibility of applying videotape methodology in future wider scale national and international surveys of classroom instructional practices.

Scope and Methods

The study sample included 231 eighth-grade mathematics classrooms: 100 in Germany, 50 in Japan, and 81 in the United States. The three samples were selected from among the schools and classrooms participating in the 1994–95 TIMSS assessments. They were designed as nationally representative samples of eighth-grade students in the three countries, although some minor deviations arose. In the United States, the TIMSS sample consisted of 109 schools, each of which was paired with a school that had similar characteristics. Forty of the sampled schools refused to participate. Twelve of these schools were replaced with schools from the "paired" sample. Thus, the final video sample in the United States consisted of 81 schools. The high refusal rate among originally sampled U.S. schools should be kept in mind as a potential source of sampling bias. In the Japanese sample, when there was more than one eighth-grade class in a school, the principal exercised discretion in the choice of classrooms to be videotaped.

One lesson was videotaped in each classroom at some point during the school year. The specific date for videotaping was determined in consultation with the school and the teacher in order to minimize conflicts with special events, such as field trips or school holidays, and to minimize the videographers' travel expenses. Tapes were encoded and stored digitally on CD-ROM and were accessed and analyzed using multimedia database software developed especially for this project. All lessons were transcribed and then analyzed on a number of dimensions by teams of coders who were native speakers of the three languages. Analyses presented here are based on weighted data. The analyses focused on the content and organization of the lessons, as well as on the instructional practices used by teachers during the lessons.

Findings

The video data are vast and will continue to provide rich analysis opportunities for researchers. The findings reported here, while preliminary, reveal a number of differences in instructional practices across the three cultures. These differences fall into four broad categories: (1) how lessons are structured and delivered; (2) what kind of mathematics is presented in the lessons; (3) what kind of mathematical thinking students are engaged in during the lessons; and (4) how teachers view reform.

How lessons are structured and delivered

To understand how lessons are structured, it is important first to know what teachers intend students to learn from the lessons. Information gathered from teachers in the video study indicates an important cross-cultural difference in lesson goals. Solving problems is the end goal for the U.S. and German teachers: how well students solve problems is the metric by which success is judged. In Japan, problem solving is assumed to play a different role. Understanding mathematics is the overarching goal; problem solving is merely the context in which understanding can best grow. Following this difference in goals, we can begin to identify cultural differences in the scripts teachers in each country use to generate their lessons. These different scripts are probably based on different assumptions about the role of problem solving in the lessons, about the way students learn from instruction, and about the proper role of the teacher.

Although the analyses are preliminary, there appears to be a clear distinction between the U.S. and German scripts, on the one hand, and the Japanese script, on the other. U.S. and German lessons tend to have two phases: an initial acquisition phase and a subsequent application phase. In the acquisition phase, the teacher demonstrates or explains how to solve an example problem. The explanation might be purely procedural (as most often happens in the United States) or may include development of concepts (more often the case in Germany). Yet the goal in both countries is to teach students a method for solving the example problem(s). In the application phase, students practice solving examples on their own while the teacher helps individual students who are experiencing difficulty.

Japanese lessons appear to follow a different script. Whereas in U.S. and German lessons instruction comes first, followed by application, in Japanese lessons the order of activity is generally reversed. Problem solving comes first, followed by a time in which students reflect on the problem, share the solution methods they have generated, and jointly work to develop explicit understandings of the underlying mathematical concepts. While students in U.S. and German classrooms must follow their teachers as they lead students through the solution of example problems, Japanese students have a different job: to invent their own solutions, then reflect on those solutions in an attempt to increase understanding.

In addition to these differences in goals and scripts, we also find differences in the coherence of lessons in the three countries. The greatest differences are between U.S. lessons and Japanese lessons. U.S. lessons are less coherent than Japanese lessons if coherence is defined by several criteria: U.S. lessons are more frequently interrupted, both from outside the classroom and within; U.S. lessons contain more topics—within the same lesson—than Japanese lessons; and Japanese teachers are more likely to provide explicit links or connections between different parts of the same lesson.

What kind of mathematics is presented

Looking beyond the flow of the lessons, we also find cross-cultural differences in the kind of mathematical content that is presented in the lessons. When viewed in comparison to the content of lessons in the 41 TIMSS countries, the average eighth-grade U.S. lesson in the video sample deals with mathematics at the seventh-grade level by international standards, whereas in Japan the average level is ninth grade. The content of German lessons averages at the eighth-grade level.

The quality of the content also differs across countries. For example, most mathematics lessons include some mixture of concepts and applications of those concepts to solving problems. How concepts are presented, however, varies a great deal across countries. Concepts might simply be stated, as in "the Pythagorean theorem states that $a^2 + b^2 = c^2$," or they might be developed and derived over the course of the lesson. More than three-fourths of German and Japanese teachers develop concepts when they include them in their lessons, compared with about one-fifth of U.S. teachers. None of the U.S. lessons include proofs, whereas 10 percent of German lessons and 53 percent of Japanese lessons include proofs.

Finally, as part of the video study, an independent group of U.S. college mathematics teachers evaluated the quality of mathematical content in a sample of the video lessons. They based their judgments on a detailed written description of the content that was altered for each lesson to disguise the country of origin (e.g., by deleting references to currency). They completed a number of in-depth analyses, the simplest of which involved making global judgments of the quality of each lesson's content on a three-point scale (low, medium, and high). (Quality was judged according to several criteria, including the coherence of the mathematical concepts across different parts of the lesson and the degree to which deductive reasoning was included.) Whereas 39 percent of the Japanese lessons and 28 percent of the German ones received the highest rating, none of the U.S. lessons received the highest rating. Eighty-nine percent of U.S. lessons received the lowest rating, compared with 11 percent of Japanese lessons.

What kind of mathematical thinking students use

When we examine the kind of work students engage in during the lessons, we find a strong resemblance between Germany and the United States, with Japan looking distinctly different. Three types of work were coded in the video study: practicing routine procedures, applying concepts to novel situations, and inventing new solution methods or thinking. Ninety-six percent of student working time in Germany and 90 percent in the United States is spent practicing routine procedures, compared with 41 percent in Japan. Japanese students spend the majority of their time inventing new solutions that require conceptual thinking about mathematics.

How teachers view and implement reform ideas

A great deal of effort has been put into the reform of mathematics teaching in the United States in recent years. Numerous documents—such as the National Council of Teachers of Mathematics' *Curriculum and Evaluation Standards for School Mathematics* (1989) and *Professional Standards for Teaching Mathematics* (1991)—encourage teachers to change the way they teach. There is great agreement, at least among mathematics educators, as to what desirable instruction should look like. Although most of the current ideas stated in such documents are not operationalized to the extent that they could be directly coded, it is possible to view some of the indicators developed in the video study in relation to these current ideas.

When the video data are viewed in this way, Japanese teachers, in certain respects, come closer to implementing the spirit of current ideas advanced by U.S. reformers than do U.S. teachers. For example, Japanese lessons include high-level mathematics, a clear focus on thinking and problem solving, and an emphasis on students deriving alternative solution methods and explaining their thinking. In other respects, though, Japanese lessons do not follow such reform guidelines. They include more lecturing and demonstration than even the more traditional U.S. lessons, and we never observed calculators being used in a Japanese classroom.

Regardless of whether or not Japanese classrooms share features of "reform" classrooms, it is quite clear that the typical U.S. classroom does not. Furthermore, the U.S. teachers, when asked if they were aware of current ideas about the best ways to teach mathematics, responded overwhelmingly in the affirmative. Seventy percent of the teachers claimed to be implementing such ideas in the very lesson that we videotaped. When asked to justify these claims, the U.S. teachers referred most often to surface features, such as the use of manipulatives or cooperative groups, rather than to the key point of the reform recommendations, which is to focus lessons on high-level mathematical thought. Although some teachers appear to have changed these surface-level characteristics of their teaching, the data collected for this study suggest that these changes have not affected the deeper cultural scripts from which teachers work.

Key points

Bearing in mind the preliminary nature of these findings, as well as the interpretations of the findings, we can, nevertheless, identify four key points:

- The content of U.S. mathematics classes requires less high-level thought than classes in Germany and Japan.
- U.S. mathematics teachers' typical goal is to teach students how to do something, while Japanese teachers' goal is to help them understand mathematical concepts.
- Japanese classes share many features called for by U.S. mathematics reforms, while U.S. classes are less likely to exhibit these features.
- Although most U.S. math teachers report familiarity with reform recommendations, relatively few apply the key points in their classrooms.

These initial findings suggest a need for continued analysis of these data on eighth-grade mathematics practices. Caution should be exercised in generalizing to other subjects or grade levels.

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Data source: The 1994–95 Third International Mathematics and Science Study (TIMSS) Videotape Classroom Study.

For technical information, see the complete report:

Stigler, J.W., Gonzales, P., Kawanaka, T., Knoll, S., and Serrano, A. *The TIMSS Videotape Classroom Study: Methods and Findings From an Exploratory Research Project on Eighth-Grade Mathematics Instruction in Germany, Japan, and the United States* (NCES 1999–074).

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To obtain the complete report (NCES 1999–074), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Crosscutting Statistics

Digest of Education Statistics: 1998
Thomas D. Snyder 113

Digest of Education Statistics: 1998

Thomas D. Snyder

This article was excerpted from the Foreword and Introduction to the Compendium of the same name. The sample survey and universe data are from numerous sources, both government and private, and draw especially on the results of surveys and activities carried out by NCES.

The 1998 edition of the *Digest of Education Statistics* is the 34th in a series of publications initiated in 1962. (The *Digest* has been issued annually except for combined editions for the years 1977–78, 1983–84, and 1985–86.) Its primary purpose is to provide a compilation of statistical information covering the broad field of American education from kindergarten through graduate school.

The publication contains information on a variety of subjects in the field of education statistics, including the number of schools and colleges, teachers, enrollments, and graduates, in addition to educational attainment, finances, federal funds for education, employment and income of graduates, libraries, and international education. Supplemental information on population trends, attitudes on education, education characteristics of the labor force, government finances, and economic trends provides background for evaluating education data.

In addition to updating many of the statistics that have appeared in previous years, this edition contains a significant amount of new material, including

- parental involvement in education-related activities;
- number of hours young children spend in day-care programs;
- performance of 8th-grade students in music, theatre, and visual arts;
- finances of nonprofit institutions of higher education;
- international comparisons of the performance of 12th-grade students in mathematics and science; and
- percentage of home computer users using specific applications.

Participation in Formal Education

In the fall of 1998, about 67.3 million persons were enrolled in American schools and colleges (table A). About 3.8 million were employed as elementary and secondary school teachers and as college faculty. Other professional, administrative, and support staff of educational institutions numbered 4.2 million. Thus, about 75 million people were involved, directly or indirectly, in providing or receiving formal education. In a nation with a population of about 270 million, more than 1 out of every 4 persons participated in formal education.

Elementary/Secondary Education

Enrollment

Since the enrollment rates of kindergarten and elementary school age children have not changed much in recent years,

Table A.—Estimated number of participants in elementary and secondary education and in higher education: Fall 1998
(In millions)

Participants	All levels (elementary, secondary, and higher education)	Elementary and secondary schools			Institutions of higher education		
		Total	Public	Private	Total	Public	Private
Total	75.4	58.6	52.0	6.6	16.8	12.9	3.9
Enrollment*	67.3	52.7	46.8	5.9	14.6	11.4	3.2
Teachers and faculty	3.8	3.1	2.7	0.4	0.7	0.5	0.2
Other professional, administrative, and support staff	4.2	2.8	2.5	0.2	1.5	1.0	0.5

*Includes enrollments in local public school systems and in most private schools (religiously affiliated and nonsectarian). Excludes subcollegiate departments of institutions of higher education, residential schools for exceptional children, and federal schools. Elementary and secondary includes most kindergarten and some nursery school enrollment. Excludes preprimary enrollment in schools that do not offer first grade or above. Higher education comprises full-time and part-time students enrolled in degree-credit and non-degree-credit programs in universities, other 4-year colleges, and 2-year colleges.

NOTE: The enrollment figures include all students in elementary and secondary schools and colleges and universities. However, the data for teachers and other staff in public and private elementary and secondary schools and colleges and universities are reported in terms of full-time equivalents. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, unpublished projections and estimates. (This table was prepared July 1998.) (Originally published as table 1 on p. 11 of the complete report from which this article is excerpted.)

increases in elementary school enrollment have been driven primarily by increases in the number of young people. Enrollment in public elementary and secondary schools rose 19 percent between 1985 and 1998. The fastest growth occurred in the elementary grades, where enrollment rose 24 percent over the same period, from 27.0 million in 1985 to a record high of 33.5 million in 1998. Secondary enrollments declined 8 percent from 1985 to 1990, but then rose by 17 percent from 1990 to 1998, for a net increase of 7 percent. Private school enrollment grew more slowly than public school enrollment over this period, rising 7 percent, from 5.6 million in 1985 to 5.9 million in 1998. As a result, the percentage of students enrolled in private schools declined slightly, from 12 percent in 1985 to 11 percent in 1998.

NCES forecasts record levels of enrollment during the late 1990s. The fall 1998 public school enrollment marks a new record, and new records are expected every year through the early 2000s. Public elementary enrollment is projected to grow slowly over the next few years and then decline slightly, so that the fall 2008 projection is almost the same as the 1998 enrollment. In contrast, public secondary school enrollment is expected to have a substantial increase of 11 percent between 1998 and 2008.

Teachers

An estimated 3.1 million elementary and secondary school teachers were engaged in classroom instruction in the fall of 1998. This number has risen in recent years, up about 7 percent since 1988. The number of public school teachers in 1998 was about 2.7 million and the number of private school teachers was about 0.4 million. About 1.9 million teachers taught in elementary schools, while about 1.2 million were teaching at the secondary level.

The number of public school teachers has risen at about the same rate as the number of students over the past 10 years, resulting in very small changes in the pupil/teacher ratio. In the fall of 1998, there were 17.2 public school pupils per teacher, compared with 17.3 public school pupils per teacher 10 years earlier. During the same time period, the pupil/teacher ratio in private schools fell from 15.2 to 14.9. Despite the historical trend toward lower pupil/teacher ratios, the fluctuations since 1990 suggest stability in the pupil/teacher ratio.

The salaries of public school teachers, which lost purchasing power to inflation during the 1970s, rose faster than the inflation rate in the 1980s. The rising salaries reflected an interest by state and local education agencies in boosting teacher salary schedules and, to some extent, an increase in teachers' experience and education levels. Since 1990–91, salaries for teachers have fallen slightly after adjusting for inflation. The average salary for teachers in 1997–98 was $39,385.

Student performance

Reading. Overall, the reading achievement scores for the country's 9-, 13-, and 17-year-old students are mixed. Reading performance scores for 9- and 13-year-olds were somewhat higher in 1996 than they were in 1971. However, there has been little change since the mid-1980s. The reading performance of 17-year-olds was about the same in 1996 as it was in 1971. Black 13- and 17-year-olds exhibited higher reading performance in 1996 than in 1971. Black 9-year-olds' performance improved significantly between 1971 and 1980, but it has not improved further. The performance levels of white 9- and 13-year-olds also rose between 1971 and 1996. Separate data for Hispanics were not gathered in 1971, but changes between 1975 and 1996 indicate an increase among 9-year-olds. There was no significant difference between the 1975 and 1996 reading performance of 13- and 17-year-old Hispanics.

Mathematics. Results from assessments of mathematics proficiency indicate that 9- and 13-year-old students improved their performance between 1973 and 1996. However, there has been very little change for 9-year-olds since 1990, and the performance of older students on advanced mathematical operations has been stable. The proportion of 17-year-olds who demonstrated skill with moderately complex procedures and reasoning rose from 52 percent in 1978 to 60 percent in 1996. During the same time period, the proportion of 17-year-olds with skill in multistep problem solving and algebra remained unchanged.

White, black, and Hispanic students improved their mathematics performance between 1973 and 1996, among all three age groups. Mathematics scores for white, black, and Hispanic 9-, 13-, and 17-year-olds improved between 1986 and 1996.

A 1996 voluntary assessment of the states found that mathematics proficiency varied widely among eighth-graders in the 42 jurisdictions (40 states, Guam, and the District of Columbia) that participated in the program. Overall, 62 percent of eighth-grade students performed at or above the basic level in mathematics. Only four states, the District of Columbia, and Guam had fewer than 50 percent of students performing at least at the basic level in math. Ten states had 70 percent or more of their students performing at or above the basic level.

Science. Long-term changes in science performance have been mixed, though changes over the past 10 years have been generally positive. In 1996, science performance among 17-year-olds was lower than in 1970, but higher than in 1986. The science performance level of 13-year-olds was higher in 1996 than in 1986, recouping earlier declines. The science performance of 9-year-olds increased between 1986 and 1996, after showing no significant change between 1970 and 1986.

The science performance of white 9- and 13-year-olds was about the same in 1996 as it was in 1970, and the performance of 17-year-olds was lower in 1996. However, the performance at each of the three age groups was higher in 1996 than in 1986. Black and Hispanic 9- and 13-year-olds had higher science performance in 1996 than in the 1970s. Black 17-year-olds showed a decline through 1982 but an increase by 1996. Despite significant gains by younger black and Hispanic students, their average performance remains lower than for white students. Although the performance gap between black and white students has narrowed, the science performance for black 13-year-olds was slightly lower than the average for white 9-year-olds in 1996.

International comparisons. The results of a 1995 international assessment in math and science show that U.S. fourth- and eighth-graders compare more favorably with other countries in science than in mathematics. In mathematics, U.S. eighth-graders scored below the international average, falling below 20 of the 41 countries tested. Fourth-graders performed above the international average, scoring below 7 of the 26 countries tested, including Singapore, Korea, and Japan. Students at both the fourth- and eighth-grade levels scored above the international average in science. Eighth-grade students in the United States were outperformed by 4 out of 41 countries. Fourth-grade students once again compared more favorably with their international counterparts than eighth-grade students. Out of 26 countries that participated in the fourth-grade assessment, only 1 country outperformed the U.S. students in science.

The international standing of U.S. students was stronger at the 8th grade than at the 12th grade in both mathematics and science among the countries that participated in the assessments at both grade levels. U.S. 12th-graders performed below the international average and among the lowest of the 21 countries on the assessment of mathematics general knowledge. U.S. students were outperformed by those in 14 countries and outperformed those in 2 countries. U.S. 12th-graders also performed below the international average and among the lowest of the 21 countries on the assessment of science general knowledge. U.S. students were outperformed by students in 11 countries, and they outperformed students in 2 countries. U.S. students' scores were not significantly different from those of seven countries, including France, Germany, Italy, and the Russian Federation (Takahira et al., 17 and 18).

Public perception

Public perception about problems facing the local public schools has shifted in the past several years. Between 1985 and 1990, an increasing proportion of people believed that drug use was a major problem facing schools. Then, the proportion of people who felt drug use was a major problem facing schools fell, from 38 percent in 1990 to 10 percent in 1998. In the latest survey, lack of discipline was cited as a major problem by 14 percent of the population; fighting, gangs, and violence was cited by 15 percent; and the lack of financial support was cited by 12 percent.

Higher Education

Enrollment

College enrollment hit a record level of 14.5 million in fall 1992 and was expected to reach a new high in 1998, after falling slightly between 1993 and 1995. Despite decreases in the traditional college-age population during the 1980s and early 1990s, total enrollment has increased because of the high enrollment rate of older women and a rising rate of college attendance for recent high school graduates. Since 1980, the number of part-time students has generally increased at a faster rate than full-time students.

Faculty and staff

During the fall of 1995, there were 932,000 faculty members in higher education institutions. Making up this figure were 551,000 full-time and 381,000 part-time faculty. In 1992, full-time instructors generally taught more hours and more students than part-time instructors, with 61 percent of full-time instructors teaching 8 or more hours per week and two-thirds teaching 50 or more students. About 30 percent of part-time instructors taught 8 or more hours per week and 30 percent taught 50 or more students.

White males constituted a disproportionate share of full-time college faculty in 1995. Overall, about 57 percent of full-time faculty were white males. However, this distribution varied substantially by rank of faculty. Among full professors, the proportion of white males was 75 percent. The proportion was somewhat lower among the lower ranked faculty, with white males making up 39 percent of the lecturers.

Graduates, Degrees, and Attainment

The number of high school graduates in 1997–98 totaled about 2.7 million. Approximately 2.4 million graduated from public schools and less than 0.3 million graduated from private schools. The number of high school graduates has declined from its peak in 1976–77, when 3.2 million people earned their diplomas. The dropout rate declined over this period, from 14 percent of all 16- to 24-year-olds in 1977 to 11 percent in 1997. The number of degrees conferred by institutions of higher education during the 1997–98 school year by degree level has been projected: 520,000 associate degrees; 1,172,000 bachelor's degrees; 406,000 master's degrees; 78,400 first-professional degrees; and 45,200 doctor's degrees.

The Bureau of the Census has collected annual statistics on the educational attainment of the population in terms of years of school completed. Between 1980 and 1997, the proportion of the adult population 25 years of age and over with 4 years of high school or more rose from 69 percent to 82 percent, and the proportion of adults with at least 4 years of college increased from 17 percent to 24 percent. In contrast, the proportion of young adults (25- to 29-year-olds) completing high school showed a small increase of about 2 percentage points.

Education Expenditures

Expenditures for public and private education, from preprimary through graduate school, are estimated at $584 billion for 1997–98. The expenditures of elementary and secondary schools are expected to total about $351 billion for 1997–98, while those of institutions of higher education will be about $233 billion. Viewed in another context, the total expenditures for education are expected to amount to about 7.2 percent of the gross domestic product in 1997–98, about the same percentage as in the recent past.

Summary

The statistical highlights presented here provide a quantitative description of the current American education scene. Clearly, from the large number of participants, the number of years that people spend in school, and the large sums expended by educational institutions, it is evident that the American people have a high regard for education. Assessment data indicate that there have been improvements in mathematics and science performance between 1986 and 1996. A high proportion of high school graduates are going on to college. Yet, wide variations in student proficiency from state to state and mediocre mathematics scores of American students in international assessments pose challenges.

Reference

Takahira, S., Gonzales, P., Frase, M., and Salganik, L.H. (1998). *Pursuing Excellence: A Study of U.S. Twelfth-Grade Mathematics and Science Achievement in International Context* (NCES 98–049). U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Data sources: The *Digest* draws on over 50 sources of data, including most NCES studies.

For technical information, see the complete report:

Snyder, T.D. (1999). *Digest of Education Statistics: 1998* (NCES 1999–036).

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To obtain the complete report (NCES 1999–036), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

METHODOLOGY

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Classification Evaluation of the 1994–95 Common Core of Data: Public Elementary/Secondary Education Agency Universe Survey

Stephen Owens

This article was originally published as the Introduction to the technical report of the same name. The evaluation focuses on the Public Elementary/Secondary Education Agency Universe Survey, part of the 1994–95 Common Core of Data (CCD).

Introduction

This report is the second in a series that will provide a comprehensive assessment of data quality in the Common Core of Data (CCD) as it relates to coverage, classification, reliability, validity, survey design, and estimation.[1] The purpose of this evaluation is to analyze and document classification issues. The results can be used for ongoing process improvement of the CCD statistical program. This evaluation also explores such issues as school district geography, enrollment, governance, history, and service delivery and relates each to agency and school classification.

During the reference frame of this evaluation, the CCD statistical program consisted of four separate surveys. These were the Public Elementary/Secondary Education Agency Universe Survey (hereafter referred to as the agency survey), the Public Elementary/Secondary School Universe Survey (hereafter referred to as the school survey), the State Non-Fiscal Survey (hereafter referred to as the state aggregate survey), and the National Public Education Fiscal Survey (NPEFS).

This evaluation was undertaken primarily to examine the agency portion of the survey, but it does integrate the school portion for certain purposes. Agencies are authorized under state law to perform certain services and to operate certain types of schools. A comparison of school types reported by various agencies can be found in the complete report.

A detailed analysis of CCD definitions contained in both the glossary and field description portions of the instructions for completing the survey is also included. The purpose of this analysis is to describe potential definitional inconsistencies, omissions, and redundancies. The analysis is not intended to serve as a framework for a new set of definitions, but it describes possible validity and reliability problems as they relate to survey definitions.

The evaluation process was initiated by researching state statutes and administrative codes to determine the powers, governance, service area, and services provided by agencies existing in each state. This research was based on existing research done by the Bureau of the Census in connection with the 1992 Census of Governments and updated based on state legislation passed after the reference date of that census. These findings are included in the complete report.

Summary of Major Findings and Recommendations

- The CCD survey is used as a basis for many other surveys within the Department of Education. It would be an ideal platform on which to unify public elementary/secondary education definitions for all related surveys.

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[1] The first report in the series (Owens 1997) compared the CCD Agency Universe Survey with other sources in order to identify potential coverage problems.

- The full potential of the CCD survey has yet to be realized. An improved CCD survey could take on several important roles.
- CCD definitions are generally inadequate. Many are neither exhaustive nor exclusive and present obvious problems for respondents. The inadequacy of and misinterpretation of survey definitions lead to unreliable and invalid data.
- Schools and agencies are canvassed in separate surveys, but CCD definitions do not provide a clear distinction between the two components.
- To reduce reporting errors, refinements in survey methodology should be explored. Possibilities include assigning a central reference person to interpret survey definitions, establishing state-to-federal definitional crosswalks, directly canvassing local education agencies, and restructuring the survey to meet state reporting capabilities.
- CCD definitions should be revised so that they are both flexible and exhaustive. If individual arrangements in states differ from conventional approaches, and cannot be made to fit into the definitional framework, they must be clearly documented and explained.
- In order to prevent duplication of effort and unnecessary respondent burden, all education surveys that use the CCD as their sampling frame should be coordinated. Definitions should be unified where possible, and information should be shared among surveys where possible.
- Enrollments from the school, agency, and state aggregate surveys are not comparable. Enrollment figures represent different things in different states on different surveys. The basis for enrollment must be adequately defined.
- Certain geographic coding schemes in the CCD survey may produce misleading results. With the completion of the school district mapping project,[2] the utility of these codes may be in question.
- The advent of a new period of education reform makes this an opportune time to revisit the structure and content of the CCD survey.

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For technical information, see the complete report:

Owens, S. (1999). *Classification Evaluation of the 1994–95 Common Core of Data: Public Elementary/Secondary Education Agency Universe Survey* (NCES 1999–316).

For additional information on methodology, see

Documentation for the 1994–95 Common Core of Data Public Agency Universe Survey Data. Available: *http://nces.ed.gov/ccd/pubagency.html*

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To obtain the report (NCES 1999–316), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

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[2] The school district mapping project integrated school district boundaries into the Census Bureau's mapping system. Data sets that have detail down to the census block can now be used for school district analysis (Drews 1994; U.S. Department of Education 1996).

Indirect State-Level Estimation for the Private School Survey

Beverly D. Causey, Leroy Bailey, and Steven Kaufman

This article is excerpted from the Technical Report of the same name. The universe data are from the NCES Private School Universe Survey (PSS).

Introduction

The Private School Universe Survey (PSS) is conducted by the Bureau of the Census, under the sponsorship of the National Center for Education Statistics. It is a mail survey, designed to provide data relating to all private schools in the 50 states and the District of Columbia. The survey is a census of private schools. It is conducted biannually and attempts to achieve a complete count of private schools and accompanying counts of their students, teachers, and graduates. During each administration of the survey, the PSS private school register is updated prior to survey mailout. Two sources are used to update the register: (1) the *list frame*, a synthesis of association, state, and commercial listings of private schools; and (2) an *area sample*, an independent listing of private schools included in a sample of geographical areas.

Despite ongoing efforts to update the PSS register, the private schools' list frame remains incomplete. The most recent estimate of the undercoverage rate for private schools was about 8 percent (Jackson and Frazier 1995); that is, about 8 percent of the private schools were not included on the register after the update from the list frame. The list enumeration is therefore supplemented by an area sample designed to identify and represent unlisted private schools in the PSS estimates.

A nationally representative sample of primary sampling units (PSUs)—each PSU consisting of a single county or a group of counties—is chosen for the area sample. Therefore, our area frame consists of the list of PSUs of which the nation is composed. The sample facilitates the identification of private schools not included in the list frame. Within each selected PSU, a list of private schools is compiled from such sources as telephone books, yellow pages, local government offices, chambers of commerce, and religious institutions. This list is merged with the list frame, and therefore represents an expansion of the survey frame to the extent that unlisted schools were detected.

The PSS sample design can readily support the computation of direct survey estimates of the number of private schools and their numbers of students, teachers, and graduates at the national and regional levels. These direct survey estimates are obtained in the conventional manner in survey analysis, where sampled schools are weighted up to represent unsampled and nonresponding schools.

While direct estimation produces estimates of adequate precision for the four geographical regions, the national-level design of the area sample can result in less reliable estimates for individual states. In order to address this problem, the use of indirect estimation methods is recommended. This report describes the development and evaluation of the statistical models used to produce indirect state estimates from the PSS for the 1991–92 and 1993–94 school years.

The statistical models are based on the data obtained from the area sample PSUs. Within these PSUs, data are available for both the private schools listed in the list frame and those identified through the area frame. From these data, models can be developed to predict the probability that a school of a given type is included in the list frame. Then for nonsampled PSUs, the listed schools of the designated school type can be weighted up by the inverse of this probability, in order to represent the corresponding unlisted schools in those PSUs.

A problem that arises with the use of indirect estimates for relatively small geographical areas is that when the estimates from such areas are added together, the sum will not be consistent with the direct estimate for the combined area. Consequently, the sum of the indirect estimates for the states in a region generally will not equal the direct estimate for the region. This problem is handled by a constrained estimation procedure that adjusts the indirect state estimates so that the resultant estimates for the states in a region sum to the direct regional estimate.

Current Methodology—Direct Estimation

This section describes the PSS sample design and direct estimation procedures currently used to produce national and regional survey estimates. For direct estimation, each unlisted school added to the list frame's total through the area sample is weighted by the reciprocal of its PSU's selection probability. All list frame schools are included in the PSS, and therefore receive a sampling weight of 1.0. Consequently, the overall weight adjustment for those schools reflects only a noninterview adjustment. An

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estimated 8 percent of the targeted private schools did not respond for the 1993–94 survey period (Broughman 1996). The corresponding rate for 1991–92 was 2 percent. Within each sampled PSU, the weighted estimate of the number of unlisted schools from the area sample is added to the list frame count. This sum is aggregated over PSUs within the individual states to obtain state totals, and over states to obtain the four regional totals for the number of private schools. Estimates are obtained similarly for the number of students, teachers, and graduates.

This approach is readily extended to produce estimates for subgroups, such as regions or type of school, by confining the summations to schools in a specified subgroup. While this procedure can be used to provide unbiased estimates for states, the estimates produced in this manner are subject to considerable sampling error. The reason for this lack of precision is that the sample of PSUs for the area frame was not stratified geographically by state but only by region. As a result, the number of PSUs sampled in a state is random. The percentage of sampled PSUs in a given region, from a particular state, can differ considerably from the percentage of the total population of the region ascribed to the state. If the number of PSUs sampled in the state is larger than expected, the state estimates will be too large, and if smaller than expected, they will be too small. As a result, we have developed a model-based procedure for state estimation in an effort to improve upon estimates derived from direct estimation.

Proposed Indirect Estimation

An indirect or synthetic estimator is generally defined as a nontraditional estimator which "borrows strength" from a domain or time period, other than those of interest, in deriving desired predictions or estimates. With indirect estimation, as with direct estimation, the PSS sample is treated as being composed of schools from both the list and area frames. However, the indirect procedure uses the area sample to identify schools not included in the list frame, and to establish a basis for data adjustment in nonsampled PSUs to account for the missing schools. The unweighted counts from these unlisted (missed) schools are added to the list frame counts, providing a complete count in sampled PSUs. For nonsampled PSUs, noncoverage adjustment factors derived from the area sample are applied to the list frame sample to compensate for the unlisted schools.

Derivation of an overall adjustment

The application of the suggested indirect approach requires the specification of a model for noncoverage. The simplest of such models assumes that the unlisted schools are missing completely at random (MCAR). Under this model, the probability that a school is missed or unlisted is the same for every school. This probability may be estimated from the PSS to yield an undercoverage adjustment that is multiplied by each school's nonresponse adjustment factor to give its final weight.

Logistic regression

The MCAR assumption is a stringent one that is unlikely to hold in practice. Coverage can be very different for different domains of the PSS population. Consequently, it seemed desirable to consider the application of undercoverage adjustments for several subgroups of the private school population (where the MCAR assumption may be more plausible) before computing state estimates. Moreover, Jackson and Frazier (1995) provide evidence of a significant relationship between school size, as measured by student enrollment, and the probability of the school's inclusion in the original list frame. This led to the fitting of logistic regression models to the 1991–92 and 1993–94 PSS data in the nine domains or subgroups defined by school type.*

The model relates the "undercoverage proportion" (or the probability that a given school is not listed) to the regressor variable (school size). It can be estimated for area sample schools. The undercoverage adjustments were determined and applied to the listed schools and students in the non-sampled PSUs. Estimates of the regression coefficients of the model were obtained from the SAS iterative reweighted least squares logistic procedure.

The model was assessed using Hosmer-Lemeshow goodness of fit statistics to evaluate the error term of the model. For six of the nine school types there was a reasonably good fit. However, for the other three school types—the conservative Christian and unaffiliated subgroups of the "other religious" category, and the special emphasis subgroup of the nonsectarian category—the p-values suggested a lack of fit of the model.

Adjustments to regional totals

In an effort to achieve greater precision and consistency, the regional totals based on the indirect estimation method were adjusted to those based on direct estimation.

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*The nine domains or subgroups consist of three types of Catholic schools (parochial, diocesan, and private order); three types of "other religious" schools (conservative Christian, affiliated, and unaffiliated); and three types of nonsectarian schools (regular, special emphasis, and special education).

Empirical Results

Table A presents the original list frame counts (Listed), the direct estimates, the indirect estimates from the logistic regression model (Logistic), and the final indirect estimates adjusted to unbiased regional counts (Final) of the number of private schools by state. In addition, for comparison, corresponding indirect estimates were produced by adjusting list frame schools in nonsampled PSUs by an undercoverage adjustment. This was done for the nine school types (Ratio 1) and for quartiles of the school enrollment variable (Ratio 2) within school type. The assumption associated with the use of the latter adjustment is that within a given range of the school enrollment variable, the coverage probability is fairly stable. Obviously the four indirect estimates are reasonably close for the individual states, especially the first (Logistic) and the fourth (Ratio 2). Comparison of the third and fourth indirect estimates (Ratio 1 and Ratio 2) permits an assessment of the effect of introducing school enrollment as an additional stratifying variable for the adjustment process. The second indirect estimate (Final) shows the impact of the adjustments to unbiased regional counts and provides the published state numbers for 1993–94.

While the indirect estimates seem quite similar, a comparison between these estimates and the direct estimates shows disparity reflecting the underrepresentation (or overrepresentation) of sampled PSUs in the area sample. For example, there are states such as Indiana and Wisconsin for which there were no sampled PSUs in the area sample, while other states, such as Missouri and Ohio, may have been "overrepresented."

Conclusions and Recommendations

An indirect estimation approach is recommended as an alternative to the current procedure for the production of state estimates of the number of private schools in the nation and the associated numbers of students, teachers, and graduates. This procedure borrows strength from the area frame estimates of coverage in deriving "acceptable" and more equitable state estimates. Unless the list frame is complete for a given state, the current estimation procedure necessarily results in biased and highly variable state estimates. However, indirect estimation methods attempt to produce a distribution among the states of the unlisted schools (and therefore of all schools) that is "close" to the actual distribution of the target population.

Empirical results of this study suggest that undercoverage rates can be successfully modeled from the area sample and used to adjust list frame estimates for survey items. This is very evident from the review of the goodness of fit statistics for six of the selected subgroups. Moreover, relative to the total error associated with state estimates, the indirect procedure showed considerable improvement over the current direct estimation method. The overall estimate of the error of the logistic regression estimator, as measured by mean absolute error, was 40 percent lower than the error for the direct estimator.

While the indirect estimates based on simple ratio adjustments for undercoverage compared favorably with those based on the logistic regression model, there is a clear potential for improvement in the model. For example, a geographic variable could possibly be added as a regressor variable. Moreover, school-level or program emphasis could be considered as an alternative undercoverage adjustment variable.

The appropriateness of the state estimation methodology under consideration should be evaluated over several survey collection cycles. Moreover, it is suggested that an effort be exerted to identify and ensure the collection of additional data that could define other explanatory variables that might be effective in the modeling of coverage.

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Data source: The 1991–92 and 1993–94 Private School Universe Survey (PSS).

For technical information, see the complete report:

Causey, B.D., Bailey, L., and Kaufman, S. (1999). *Indirect State-Level Estimation for the Private School Survey* (NCES 1999–351).

For additional information about PSS methodology, see

Broughman, S. (1996). *Private School Universe Survey, 1993–94* (NCES 96–143).

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To obtain the complete report (NCES 1999–351), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Table A.—Comparison of list frame counts of the number of private schools with alternative adjusted estimates: 1993–94

State	Listed	Direct	Logistic	Final	Ratio 1	Ratio 2
Total	24,177	26,093	26,166	26,093	26,162	26,207
Alabama	308	410	340	354	347	339
Alaska	66	66	75	72	73	75
Arizona	263	263	295	282	295	296
Arkansas	149	179	165	174	165	167
California	3,009	3,145	3,224	3,082	3,220	3,229
Colorado	279	391	310	368	309	311
Connecticut	339	360	358	350	360	358
Delaware	90	90	99	97	99	99
District of Columbia	80	80	86	86	88	87
Florida	1,123	1,262	1,242	1,306	1,246	1,245
Georgia	457	580	509	536	514	510
Hawaii	121	121	130	130	133	130
Idaho	78	78	85	85	85	85
Illinois	1,333	1,347	1,379	1,341	1,374	1,380
Indiana	619	619	686	667	677	685
Iowa	260	290	276	268	275	276
Kansas	206	206	219	235	217	218
Kentucky	296	296	317	332	315	318
Louisiana	439	458	462	485	469	463
Maine	140	140	159	156	157	160
Maryland	522	522	560	589	566	562
Massachusetts	606	648	638	625	639	640
Michigan	1,073	1,075	1,150	1,118	1,148	1,150
Minnesota	542	542	588	572	586	587
Mississippi	191	221	201	198	209	202
Missouri	568	719	603	594	605	602
Montana	82	82	93	90	90	94
Nebraska	223	223	240	233	237	239
Nevada	58	58	61	60	61	61
New Hampshire	130	130	145	142	144	145
New Jersey	878	878	918	899	926	920
New Mexico	166	166	188	181	184	188
New York	1,865	1,985	1,974	1,933	1,977	1,977
North Carolina	444	463	495	521	493	496
North Dakota	59	59	62	61	62	62
Ohio	912	1,016	957	950	961	958
Oklahoma	128	190	147	152	146	147
Oregon	250	250	278	266	277	280
Pennsylvania	1,739	1,846	1,901	1,867	1,881	1,907
Rhode Island	112	112	117	115	117	118
South Carolina	275	297	304	320	307	305
South Dakota	96	96	106	107	104	107
Tennessee	400	496	443	466	442	444
Texas	1,025	1,353	1,178	1,239	1,185	1,181
Utah	66	66	75	72	74	76
Vermont	85	85	99	97	97	100
Virginia	459	515	510	532	513	512
Washington	433	486	485	480	484	485
West Virginia	145	145	164	172	159	165
Wisconsin	954	954	1,029	1,001	1,030	1,027
Wyoming	35	35	41	40	39	42

NOTE: Details may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Private School Survey, 1993–94. (Originally published as table 6.1 on p. 14 of the complete report from which this article is excerpted.)

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The 1997 NAEP Arts Report Card—CD-ROM

Hilary R. Persky, Brent A. Sandene, and Janice M. Askew

In 1997, the National Assessment of Educational Progress (NAEP) conducted a national assessment in the arts at grade 8, covering music, theatre, and the visual arts. The assessment measured students' ability to create and perform as well as to respond to existing works. NAEP used nationally representative samples of public and nonpublic eighth-grade students for assessing music and the visual arts, and a targeted sample for assessing theatre, because so few schools offer significant instruction in theatre. No assessment was conducted for dance, because of the difficulty of obtaining a statistically valid sample.

The *Report Card* provides information on student achievement by population subgroup and also analyzes data according to instructional and school variables. This CD-ROM features the complete text of the paper report (NCES 1999–486), plus assessment prompts and extensive examples of student work, accompanied by an analysis of the scoring of each example.

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To obtain this CD-ROM (NCES 1999–485), call the toll-free ED Pubs number (877–433–7827) or contact GPO (202–512–1800).

Data File: Public Libraries Survey: Fiscal Year 1996

The Public Libraries Survey (PLS) is conducted annually by NCES through the Federal-State Cooperative System (FSCS) for Public Library Data. The data are collected by a network of state data coordinators appointed by the Chief Officers of State Library Agencies (COSLA) in the 50 states and the District of Columbia. The PLS for fiscal year 1996 collected data items from 8,946 public libraries. Data collected include population of legal service area, staff, outlets, library materials, operating income and expenditures, circulation, reference transactions, library visits, public service hours, circulation of children's materials, and electronic technology information.

Five database files, in Microsoft Access format, were generated from the FY 1996 PLS:

- Public Library Data File;
- Public Library State Summary/State Characteristics File;
- Public Library Outlet File;
- Administrative Entities Only/State Library File; and
- State Library Outlet File.

These database files and related documentation are available on diskette as well as on the NCES Web Site.

For questions about this data product, contact P. Elaine Kroe *(Patricia_Kroe@ed.gov).*

To obtain this data product (NCES 1999–307), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov),* or contact GPO (202–512–1800).

Data File: State Library Agencies Survey: Fiscal Year 1997

The State Library Agencies (STLA) Survey is conducted annually by NCES as a cooperative effort with the Chief Officers of State Library Agencies (COSLA) and the U.S. National Commission on Libraries and Information Science (NCLIS). The STLA Survey provides state and federal policymakers, researchers, and other interested users with descriptive information about state library agencies in the 50 states and the District of Columbia. The STLA Survey for fiscal year 1997 collected data on 506 items, including governance, income, operating expenditures, financial assistance to libraries, services to libraries and systems, electronic information networks, staff, public service hours, service outlets, service and development transactions, collections, and allied operations.

The STLA Survey file consists of three tables in Microsoft Access format. This database file and related documentation are available on diskette as well as on the NCES Web Site.

For questions about this data product, contact P. Elaine Kroe *(Patricia_Kroe@ed.gov).*

To obtain this data product (NCES 1999–305), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov),* or contact GPO (202–512–1800).

Other Publications

The NAEP 1998 Reading Report Card: National and State Highlights

Sheida White

In 1998, NCES administered the National Assessment of Educational Progress (NAEP) reading assessment to a national sample of students at grades 4, 8, and 12, and to state samples of students at grades 4 and 8. The results of this assessment present a broad view of how America's students are achieving in reading—one of the most important sets of skills that young people acquire and develop throughout their lives. Because the assessment administered in 1998 shared a common set of reading passages and comprehension questions with assessments given in 1992 and 1994, it is possible to use NAEP results to chart the progress American students have made in reading since 1992.

This publication provides highlights from the 1998 NAEP reading assessment, describing its content, its major findings at the national and state levels, and students' experiences at school and at home that support achievement in reading.

Author affiliation: S. White, NCES.

For questions about this publication, contact Sheida White *(Sheida_White@ed.gov).*

To obtain this publication (NCES 1999–479), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

NAEP 1998 Reading State Reports

Nada Ballator and Laura Jerry

The National Assessment of Educational Progress (NAEP) assessments are administered to representative samples of students at the national level as well as at the state level for those states that participate. The NAEP reading assessment has been administered at the state level three times: in public schools at grade 4 in 1992, in public and nonpublic schools at grade 4 in 1994, and in public and nonpublic schools at grades 4 and 8 in 1998.

The customized report for each participating state or jurisdiction presents results for that state, along with national and regional results for comparison. (*The NAEP 1998 Reading Report Card for the Nation and States* [NCES 1999–500] is the companion to the state reports; it offers data for all states and additional national data.)

The state reports have two sections: The first section provides basic information on NAEP and overall state-level results for public schools in graphic form. The second section reports findings for the entire public school population at grades 4 and 8 as well as for the population broken out by major demographic characteristics and school type.

Author affiliations: N. Ballator and L. Jerry, Educational Testing Service.

For questions about the state reports, contact Sheida White *(Sheida_White@ed.gov)*.

To obtain a state report (NCES 1999–460), visit the NCES Web Site *(http://nces.ed.gov)*.

Directory of NAEP Publications

Sahar Akhtar, Alicia Darensbourg, Munira Mwalimu, Kelly Weddel, and Sheida White

The National Assessment of Educational Progress (NAEP), known as "the Nation's Report Card," is the only ongoing nationally representative assessment of what America's students know and can do. A congressionally mandated project directed by NCES, NAEP has been conducted periodically since 1969 in reading, mathematics, science, writing, history, geography, and other subject areas.

The *Directory of NAEP Publications* is a comprehensive listing of government-funded NAEP publications dating back to the project's inception. The *Directory* groups NAEP's many compendia, reports, brochures, and other informational documents into eight main categories: national reports; state reports; abbreviated documents; technical reports; focused reports and special studies; conference proceedings and commissioned papers; NAEP evaluation studies and grant publications; and subject area objectives, frameworks, and achievement levels. A brief description of content, purposes, and intended audiences introduces the listings in each category. Within categories, publications are listed chronologically. Each listing includes a source from which the publication can be obtained.

Author affiliations: S. Akhtar, K. Weddel, and S. White, NCES; A. Darensbourg and M. Mwalimu, Aspen Systems Corporation.

For questions about this directory, contact Sheida White *(Sheida_White@ed.gov)*.

To obtain this directory (NCES 1999–489), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

Highlights From TIMSS

Chris Calsyn, Patrick Gonzales, and Mary Frase

With information on a half-million students worldwide, including more than 33,000 U.S. students in more than 500 U.S. public and private schools, the Third International Mathematics and Science Study (TIMSS) is the largest, most comprehensive, and most rigorous international study of schools and students ever conducted. During the 1995 school year, students from 41 nations were assessed at three different grade levels (fourth grade, eighth grade, and the final year of secondary school) to compare their mathematics and science achievement. TIMSS researchers also looked at schools, curricula, lessons, textbooks, policy issues, and the roles of teachers and students to understand the educational context in which mathematics and science learning take place. This 12-page brochure provides a summary of the main findings of TIMSS for each grade level, as well as overall comparative results.

Author affiliations: C. Calsyn, American Institutes for Research; P. Gonzales and M. Frase, NCES.

For questions about this brochure, contact Patrick Gonzales *(Patrick_Gonzales@ed.gov)*.

To obtain this brochure (NCES 1999–081), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov)*.

Learning About Education Through Statistics

Claire Geddes

NCES gathers data on all aspects of education from across the country, organizes the data in useful forms, and releases the resulting surveys and studies as survey reports, information compendia, and special reports that focus on specific educational topics. NCES studies provide the facts and figures needed to help policymakers understand the condition of education in the nation today, to give researchers a foundation of data to build on, and to help teachers and administrators decide the best practices for their schools. The current edition of this booklet provides general information about NCES surveys and studies, as well as guidance on how to access information from NCES.

Author affiliation: C. Geddes, NCES.

For questions about this booklet, contact Thomas D. Snyder *(Tom_Snyder@ed.gov)*.

To obtain this booklet (NCES 1999–028), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov)*.

Programs and Plans of the National Center for Education Statistics: 1999 Edition

Celestine J. Davis

NCES has the congressionally mandated responsibility to collect and disseminate information on the condition of education in the United States and other countries, to analyze and report on the meaning and significance of these statistics, and to assist states and local education agencies in improving their own education statistics systems.

This report summarizes current NCES statistical programs, including major publications and plans for future work. In addition to updating the descriptions of long-standing NCES data collections, such as the Common Core of Data (CCD), the Integrated Postsecondary Education Data System (IPEDS), and the National Assessment of Educational Progress (NAEP), this edition focuses on some new and innovative work, such as the Third International Mathematics and Science Study (TIMSS) and the Early Childhood Longitudinal Study–Kindergarten cohort (ECLS–K).

Author affiliation: C. J. Davis, NCES.

For questions about this report, contact Celestine J. Davis *(Celestine_Davis@ed.gov)*.

To obtain this report (NCES 1999–027), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

Funding Opportunities

Training

NCES is planning to conduct seminars on the following topics this year: (1) the analysis of National Assessment of Educational Progress (NAEP) databases, (2) the National Education Longitudinal Study of 1988 (NELS:88) and Early Childhood Longitudinal Study (ECLS) databases, and (3) the use of NCES analysis tools. In these seminars, participants will learn how to access and analyze the selected databases and gain further understanding about the nature and potential of the databases.

These seminars are open to faculty members and graduate students, as well as researchers and analysts from state and local education agencies and professional associations. Seminar dates and application procedures will be posted on the NCES Web Site. Applicants who are selected to participate will receive travel expenses from NCES.

For more information, contact Samuel Peng *(Samuel_Peng@ed.gov)*.

Grants

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year.

For more information, contact Edith McArthur (*Edith_McArthur@ed.gov*) or visit the AERA Grants Program Web Site (*http://aera.ucsb.edu*).

The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage educational researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from $15,000 to $100,000.

For more information, contact Alex Sedlacek (*Alex_Sedlacek@ed.gov*).

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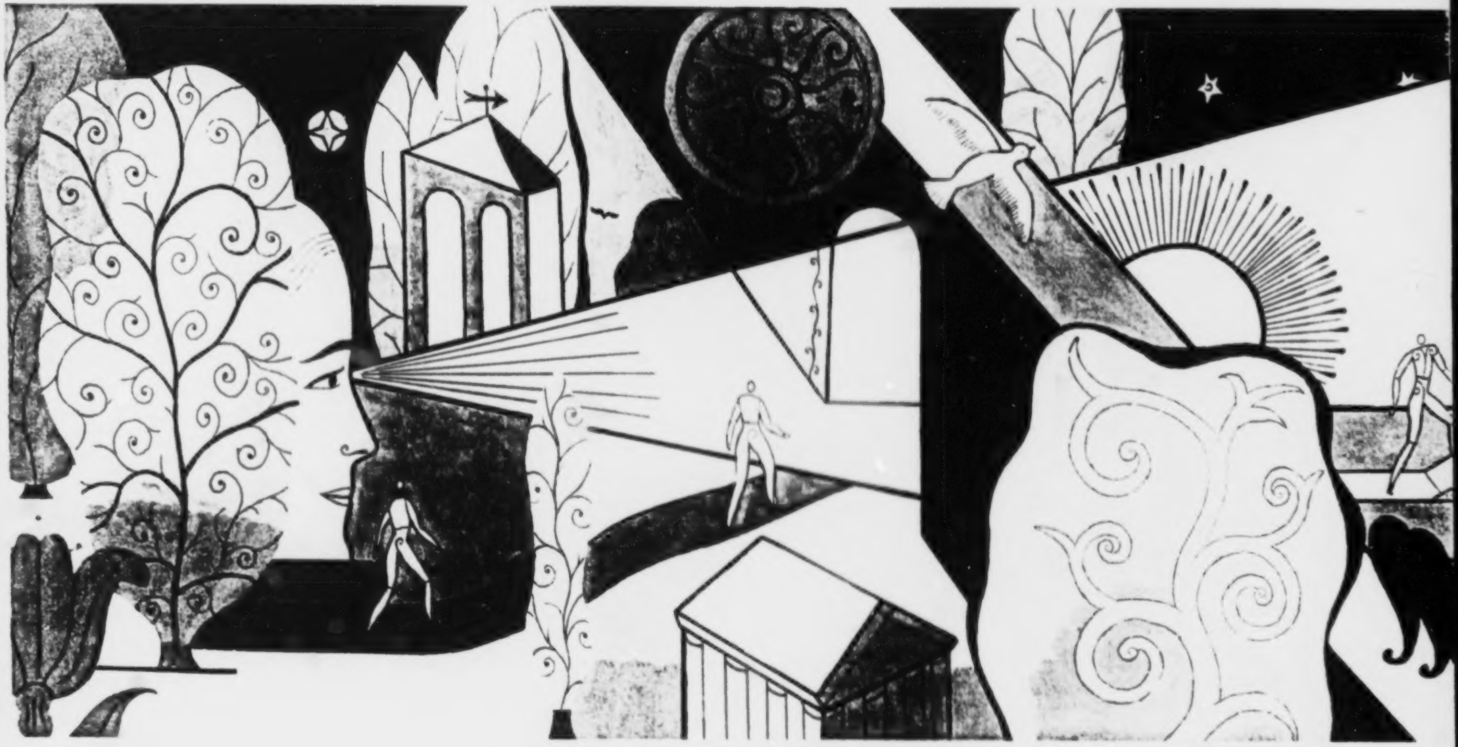

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Visit the NCES Web Site — *http://nces.ed.gov*

The NCES Web Site provides information about NCES, as well as access to a wide range of publications and data sets about education in the United States and other nations.

Reach NCES staff

Each article in the *Quarterly* lists the name and e-mail address of the NCES staff member who can answer questions about the content. It is also easy to contact any member of the NCES staff from the NCES Home Page. Under "NCES Quick Links," select "NCES Staff Directory"; then click on the first letter of the person's last name.

Obtaining NCES publications and data products

- While supplies last, you can get a single copy at no cost. Call toll free *1–877–4ED–PUBS* (1–877–433–7827) or write
  Education Publications Center (ED Pubs)
  P.O. Box 1398
  Jessup, MD 20794–1398
- If you need *more than one copy* or supplies have been exhausted, you can purchase copies from the Government Printing Office (GPO). Call GPO at 202–512–1800.
- If you have Internet access, you can print copies from our Web site (*http://nces.ed.gov*).

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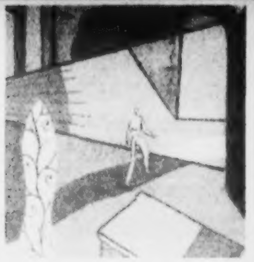

EDITORIAL NOTE

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report "statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education."

EDUCATION STATISTICS QUARTERLY

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

A complete annual index of NCES publications will appear in the Winter issue (published each January). Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 1997–98

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Overview of Public Elementary and Secondary Schools and Districts: School Year 1997–98

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Contains national and state information on the number, type, size, and location of schools and districts. Also includes student race/ethnicity, participation in the Free Lunch Program, and participation in special education services. Contains dropout data for selected states.

Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1996–1997

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Trends in Student Borrowing

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Postsecondary Institutions in the United States: 1997–98

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Presents tabulations of national and state data on the number of postsecondary institutions by Title IV eligibility, degree-granting status, control and level, and student services offered. Also provides median and mean institutional charges for full-time students.

Crosscutting Statistics

Annual Earnings of Young Adults, by Educational Attainment
from The Condition of Education: 1998 81

Provides ratios of the earnings of young adults who have different levels of educational attainment to the earnings of high school completers. Includes differences in these ratios for males and females and over time.

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National Center for Education Statistics 84

Focuses on indicators of the condition and progress of education in the United States. Covers student performance and other outcomes of learning, the quality of educational environments at the elementary/secondary and postsecondary levels, public and family support for learning, and students' participation in and progress through the educational system.

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Baccalaureate and Beyond Longitudinal Study: 1993/97 Second Follow-up Methodology Report
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Evaluation of the NCES State Library Agencies Survey: An Examination of Duplication and Definitions in the Fiscal Section
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NOTE FROM THE ACTING COMMISSIONER

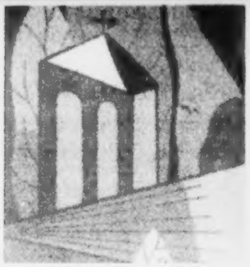
Gary W. Phillips

Dr. Phillips was designated Acting Commissioner of the National Center for Education Statistics (NCES) effective June 22, 1999. He has been at NCES for 13 years, first as branch chief for the National Assessment of Educational Progress (NAEP), then as Division Director, and most recently as the Deputy Commissioner responsible for general management of the agency, including statistical standards and technology. In 1997, he took a leave of absence from NCES to serve as the Executive Director of President Clinton's Voluntary National Test (VNT) Initiative. Prior to joining NCES, Dr. Phillips was Director of Evaluation for the Maryland State Department of Education. Dr. Phillips has a Ph.D. from the University of Kentucky with an emphasis in statistics and psychometrics. He is nationally and internationally known for his expertise in large-scale assessments and complex surveys.

Future Directions for NCES

During my tenure at NCES, my main emphasis has been on the translation of statistical data into information that is understandable, useful, and timely for policymakers. Over the past several years, I have worked on reports that I think have been instrumental in informing the debate about our national education policy agenda. These include *The Lake Wobegone Effect—A Skeleton in the Testing Closet* (1988), *A World of Differences: The First International Assessment of Educational Progress* (1990), and *The State of Mathematics Achievement: The First NAEP State-by-State Assessment* (1991). The main purpose of each of these reports was to provide new and innovative information to help education researchers, policymakers, and the public better understand the condition of education in America. I've also been responsible for work that contributed to improvement in the methodology of educational measurement, such as *Toward World Class Standards: The First Linking Study Between NAEP and International Assessments* (1993) and *Technical Issues in Large-Scale Performance Assessment* (1995).

As Acting Commissioner, I recognize that my first goal is to "keep the train on track" and to continue the agency's solid record in the collection and dissemination of education statistics. However, it would be shortsighted of me to claim that there is no room for improvement, and in this spirit I would like to outline my vision for a better NCES.



My goals are to

- Focus on the fundamental mission of NCES, established in 1867 to "collect such statistics and facts as shall show the condition and progress of education in the several States and territories, and of diffusing such information respecting the organization and management of efficient school systems, and otherwise promote the cause of education throughout the United States."
- Improve the basic NCES infrastructure to better support agency functions. This means a renewed commitment to quality, based on updated statistical standards, a wider dissemination of data and reports including vehicles such as the *Quarterly*, and continuous improvement in management, such as the use of more sophisticated technology.
- Support the reauthorization of NCES to make the agency more independent, customer oriented, and focused on high-quality, timely, and relevant data. This will be done within the context of the reauthorizing legislation for the Elementary and Secondary Education Act (ESEA), and the Office of Educational Research and Improvement (OERI).
- Increase the usefulness of the NCES Web Site by supporting more projects related to Web-based data collection, data harvesting, and online data analysis, as well as by continually expanding the Web site as a major means of releasing and disseminating reports.
- Work with colleges and universities, local and state agencies, associations, and other education constituency groups to help keep the Center's data agenda relevant to the nation's policy debates.

In my new role as Acting Commissioner, I intend to draw extensively on my experience at NCES to guide me in working toward these objectives in concert with NCES management and staff, the Department of Education, and other federal statistical agencies, as well as the broader education research and policy community.

Featured Topic: Life After College

Life After College: A Descriptive Summary of 1992–93 Bachelor's Degree Recipients in 1997, With an Essay on Participation in Graduate and First-Professional Education
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Life After College: A Descriptive Summary of 1992–93 Bachelor's Degree Recipients in 1997, With an Essay on Participation in Graduate and First-Professional Education

Alexander C. McCormick, Anne-Marie Nuñez, Vishant Shah, and Susan P. Choy

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the Second Follow-up of the Baccalaureate and Beyond Longitudinal Study (B&B).

When followed up in 1997, 1992–93 college graduates as a group were well established in the labor force, with 89 percent employed (figure A). Not all had finished their formal education, however: 18 percent were enrolled for an advanced degree or certificate (13 percent combining school and work, and 5 percent enrolled only). The remaining 6 percent were neither working nor enrolled (with females about twice as likely as males to be in this situation).

This report uses data from the Second Follow-up of the Baccalaureate and Beyond Longitudinal Study (B&B:93/97) to describe the enrollment and employment experiences of 1992–93 bachelor's degree recipients. At the beginning of the report, an essay examines a number of aspects of their experiences with graduate and first-professional education. Specific topics include their degree expectations in 1993; changes in their expectations between 1993 and 1997; steps they took to prepare for study at the graduate or first-professional level (taking the necessary examinations, applying for admission, and being accepted); their enrollment; and their progress toward advanced degrees if they did enroll.

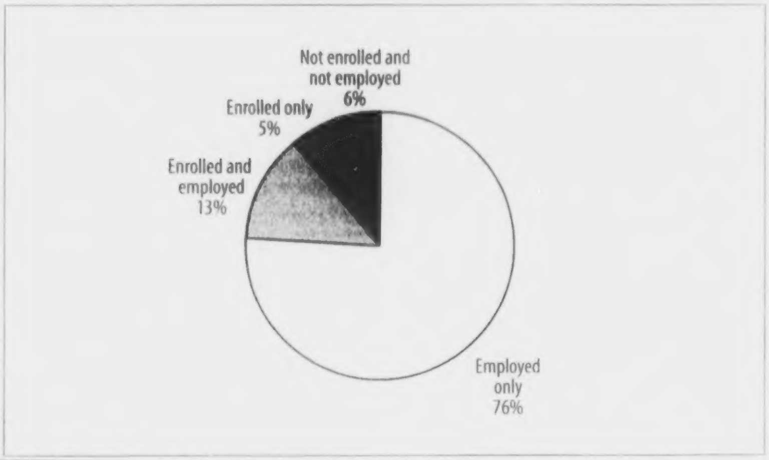
A compendium of tables and highlights following the essay details aspects of graduates' employment in April 1997 (including how much they were working, their occupations, and their salaries), their experiences with unemployment since they graduated, and various characteristics of their primary jobs in April 1997.

Graduate and First-Professional Education

Educational expectations

When asked about their educational plans in 1993, a large majority of 1992–93 bachelor's degree recipients (85 percent) reported that they expected to earn a graduate or first-professional degree sometime in the future. By 1997, the percentage with this expectation had declined to 72 percent.

Figure A—Percentage distribution of 1992–93 bachelor's degree recipients according to employment and enrollment status in 1997



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B: 93/97), Data Analysis System.

There were some differences by gender and race/ethnicity in terms of the percentages with advanced degree expectations and how expectations changed over time. In 1993, female graduates were slightly more likely than male graduates to have advanced degree expectations (87 percent versus 83 percent). By 1997, however, the difference had diminished, and they were about equally likely to expect to earn an advanced degree (73 percent of females and 71 percent of males).

In 1997, black and Hispanic graduates were more likely than white graduates to expect to earn an advanced degree (85 percent and 79 percent versus 70 percent, respectively). Advanced degree expectations dropped more for whites (15 percentage points) between 1993 and 1997 than for blacks (4 percentage points).

Undergraduate borrowing did not seem to discourage graduates from considering advanced degrees. In 1993, borrowers and nonborrowers had similar expectations, and in 1997, borrowers were actually more likely than nonborrowers to report advanced degree expectations (74 percent versus 70 percent).

Changes in graduates' advanced degree expectations differed depending on their original degree expectations. The percentage of bachelor's degree recipients who expected to earn a master's degree as their highest degree decreased slightly between 1993 and 1997 (from 58 percent to 54 percent), while the percentage expecting to complete a doctoral degree declined sharply (from 21 percent to 12 percent). The percentage expecting to earn a first-professional degree was similar in both years (about 6 percent).

Progression to graduate and first-professional education

One of the first steps toward admission to an advanced degree program is to take one of the admissions exams, such as the Graduate Record Examination (GRE), Graduate Management Admissions Test (GMAT), Law School Admissions Test (LSAT), or Medical College Admission Test (MCAT). By 1997, 39 percent of all 1992–93 bachelor's degree recipients had taken a graduate admissions exam and 41 percent had applied for admission to a graduate or first-professional program. Thirty-five percent had been accepted into at least one program, and 30 percent had enrolled (table A).

Students who applied to advanced degree programs had a good chance of being accepted somewhere. Among those who had applied by 1997, 87 percent were accepted into at least one program.

Undergraduate debt may discourage students from continuing their education. Bachelor's degree recipients who had borrowed for their undergraduate education were slightly less likely than nonborrowers to have applied for admission to a graduate or first-professional program (38 percent versus 42 percent). The amount borrowed did not seem to make a difference, however.

Students' performance in college was positively associated with applying, being accepted, and enrolling (table A). Graduates with cumulative grade-point averages (GPAs) of 3.5 or above at their baccalaureate institution were at least twice as likely as those with GPAs under 2.5 to apply, and about three times as likely to enroll.

Among the 50 percent of graduates with GPAs of 3.5 or above who applied for admission to a graduate or first-professional program, 91 percent were accepted. Eighty-three percent of those who were accepted enrolled.

Participation in graduate and first-professional education

Most postbaccalaureate enrollment by 1997 was at the master's level. Of the 30 percent of the 1992–93 bachelor's degree recipients who had enrolled in an advanced degree program by 1997, about three-quarters were pursuing a master's degree (10 percent were seeking an MBA and 66 percent were working on other master's degrees). Another 14 percent were enrolled in a first-professional degree program, and the remaining 10 percent were enrolled in a doctoral program.

Men and women were equally likely to enroll in a graduate or first-professional program, but gender differences in the types of degrees pursued were pronounced. Three-quarters of enrolled women were in a master's degree program other than an MBA, compared with about half (54 percent) of enrolled men. In contrast, men were twice as likely as women to enroll in an MBA program (14 percent versus 6 percent). Men were also more likely than women to enroll in a first-professional program (18 percent versus 10 percent) or doctoral program (13 percent versus 7 percent).

Differences existed by race/ethnicity as well. For example, Asian/Pacific Islander graduates who continued their education were about twice as likely as graduates from other racial/ethnic groups to enroll in a first-professional program (35 percent versus 12–17 percent), and they were less likely to enroll in non-MBA master's degree programs (46 percent versus 66–70 percent).

Overall, 49 percent of 1992–93 graduates who enrolled in a graduate or first-professional program by 1997 did so within a year of earning their bachelor's degree, and another 23 percent enrolled within 2 years. Doctoral students were the most likely to have enrolled within a year of graduation (78 percent did so), followed by first-professional students (55 percent) and then those entering a master's program other than an MBA (46 percent). MBA students were the least likely to enter this soon (29 percent), and one-third of them waited more than 3 years before enrolling.

Table A—Percentages of 1992–93 bachelor's degree recipients who took steps toward admission and enrolled: 1993–97

	Graduate admission exams taken	Applied for admission	Accepted	Enrolled
Total	38.8	40.6	35.4	29.8
GPA at bachelor's institution				
Under 2.5	25.6	21.6	16.3	13.5
2.5 to 2.99	34.8	36.1	30.7	25.5
3.0 to 3.49	43.7	46.0	40.2	33.6
3.5 or above	45.6	50.4	45.8	40.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), Data Analysis System.

Education and business were the fields most commonly studied, chosen by 22 and 18 percent, respectively, of the 1992–93 bachelor's degree recipients who had enrolled in an advanced degree program by 1997. About one-third (31 percent) of students enrolled in a master's program other than an MBA sought a degree in education. At the doctoral level, about one-quarter (24 percent) of students were studying the life and physical sciences (compared with about 5 percent of those pursuing a master's degree).

Enrollment patterns varied markedly with degree program. Among those enrolled in April 1997, 94 percent of those working on a first-professional or doctoral degree were enrolled full time. In contrast, a majority of non-MBA master's students (59 percent) were enrolled part time. About two-thirds of MBA students attended part time. About three-quarters (77 percent) of all MBA students attended classes on weeknights.

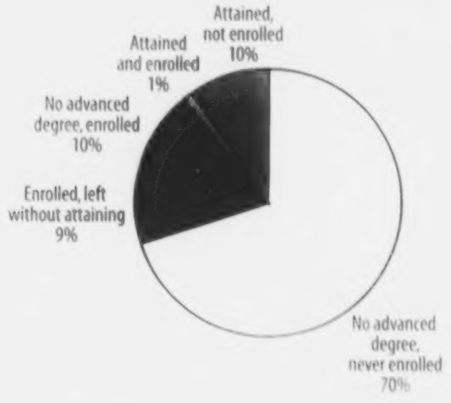
Progress toward an advanced degree reflects the combined effects of enrollment duration, enrollment intensity (full or part time), success in the courses taken, and program requirements. Of those who had enrolled for an advanced degree or certificate at any time since earning a bachelor's degree, 71 percent of doctoral students, 56 percent of MBA students, and 32 percent of non-MBA master's students were enrolled when interviewed in 1997. The rest had either completed their degree or left without completing.

Of doctoral students who enrolled within a year of earning their bachelor's degree, 57 percent had not completed their coursework by 1997, and 46 percent had not taken their exams. However, the majority (59 percent) had started on their thesis.

Just over one-half (56 percent) of 1992–93 bachelor's degree recipients who pursued an advanced degree received some type of financial aid to help pay for their education. Fifty-three percent of students in first-professional programs received loans but no grants, compared with 18–25 percent of students in other programs. Doctoral students were the most likely to receive an aid package that included grants and no loans (28 percent versus 5–12 percent of students in other degree programs). MBA seekers were the most likely to receive only employer benefits (18 percent versus no more than 4 percent for students in other degree programs).

As indicated above, 30 percent of 1992–93 graduates had enrolled in a graduate or first-professional program between the time they graduated and when they were interviewed in 1997. At the time of the 1997 interview, 21 percent had persisted—that is, they had either attained a graduate or first-professional degree or were enrolled and working toward a degree (figure B). The other 9 percent had left without a degree. Of the 21 percent who persisted, about half (10 percent) had attained a degree and were no longer enrolled. Another 1 percent had attained one degree and

Figure B—Percentage distribution of 1992–93 bachelor's degree recipients according to attainment and enrollment status: 1997



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B: 93/97), Data Analysis System.

Table B—Percentage distribution of 1992–93 bachelor's degree recipients according to graduate or first-professional degree enrollment and attainment when interviewed in 1997, by highest program enrolled

		Attained graduate/first-professional degree or currently enrolled			
	No degree, not enrolled[1]	Total	No degree, enrolled	Attained, not enrolled	Attained and enrolled
Total	78.9	21.1	9.5	10.2	1.4
Highest program enrolled					
Master's other than MBA[2]	33.6	66.5	27.3	37.0	2.2
MBA	20.8	79.2	50.5	25.6	3.2
First-professional	21.2	78.8	36.6	38.2	4.1
Doctoral	19.9	80.1	37.5	19.3	23.3

[1] Includes those who enrolled but left before 1997.

[2] Includes post-master's certificate.

NOTE: Details may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), Data Analysis System.

were enrolled for additional education, and the remaining 10 percent were enrolled but had not yet earned an advanced degree.

Persistence was lowest among students who had enrolled for a master's degree other than an MBA (table B). About one-quarter of doctoral students had completed one degree and were still enrolled.

Employment Experiences

Employment patterns

Among 1992–93 bachelor's degree recipients, 89 percent were employed in April 1997 (81 percent full time and 8 percent part time). An additional 3 percent were unemployed, and the remaining 8 percent were out of the labor force.

There were some gender differences in employment patterns. Men were slightly more likely than women to be employed (91 percent versus 88 percent), and women more likely than men to be working part time (11 percent versus 6 percent).

About three-quarters of the bachelor's degree recipients had held more than one job since graduation. The average number was 2.8.

Occupation types and salaries

About one-fifth (21 percent) of the 1992–93 graduates who were employed in April 1997 had jobs in business and management, and 16 percent were working as teachers. Fourteen percent had administrative jobs, and 11 percent had jobs in professional fields other than education, business, health, or engineering.

The overall average annual salary for graduates working full time was $34,252, but average salaries varied considerably by undergraduate major. Engineering majors, for example, were earning an average of $44,524 in April 1997, while education majors were earning an average of $26,513.

Experience with unemployment

For 1992–93 bachelor's degree recipients, the unemployment rate in April 1997 (calculated excluding those out of the labor force) was 2.9 percent. As a point of reference, the U.S. unemployment rate for adults 25 years and older was 3.7 percent at that time.

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Job characteristics

Among the 1992–93 bachelor's degree recipients who were working in April 1997, 56 percent reported that their job was closely related to their degree, and 57 percent reported that their job had definite career potential. Five percent had part-time jobs but would have preferred to be working full time.

Most (80 percent) of those employed in April 1997 were very satisfied with their coworkers. Sixty percent were very satisfied with their supervisor, and 56 percent with their working conditions. The proportion reporting that they were very satisfied with their working conditions ranged from 42 percent of those in military/protective service occupations to 66 percent for those in engineering occupations.

Bachelor's degree recipients had found their April 1997 jobs in a variety of different ways, including referrals (35 percent), want ads (22 percent), and employment agencies (8 percent).

Summary

When they graduated from college, 85 percent of 1992–93 bachelor's degree recipients expected to earn an advanced degree. By 1997, 30 percent had actually enrolled. Twenty-one percent had either attained a degree or were still enrolled, and 9 percent had left without a degree.

Overall, 89 percent were employed in April 1997—76 percent were working only, and another 13 percent were combining school and work. Relatively few (5 percent) were enrolled only. The remaining 6 percent were neither working nor enrolled.

Data source: The 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97).

For technical information, see the complete report:

McCormick, A.C., Nuñez, A.M., Shah, V., and Choy, S.P. (1999). *Life After College: A Descriptive Summary of 1992–93 Bachelor's Degree Recipients in 1997, With an Essay on Participation in Graduate and First-Professional Education* (NCES 1999–155).

For details on B&B:93/97 methodology, see

Green, P., Myers, S., Veldman, C., and Pedlow, S. (1999). *Baccalaureate and Beyond Longitudinal Study: 1993/97 Second Follow-up Methodology Report* (NCES 1999–159).

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To obtain the complete report (NCES 1999–155), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Invited Commentary: Part-Time Study Plus Full-Time Employment: The New Way to Go to Graduate School

—*Peter D. Syverson, Vice President for Research and Information Services, Council of Graduate Schools*

This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

Introduction

Using data from the Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), the featured report tells an important story about contemporary graduate education in the United States. Rather than following the traditional path of attending graduate school directly after earning the bachelor's degree, many Americans are going to work first, then attending graduate school while their careers progress. This new attendance pattern has important implications for U.S. graduate education—a system built when the traditional pattern of full-time attendance was the norm.

According to the featured report, three-quarters of those 1992–93 bachelor's degree recipients who had enrolled in graduate school by 1997 were pursuing master's degrees, and the remainder were about evenly divided between doctoral and first-professional programs. More importantly, while over 90 percent of the doctoral and first-professional students were attending full time, the majority of master's students were attending part time. These part-time students were almost all employed, advancing their careers while pursuing advanced degrees. In addition, many baccalaureate recipients not-already enrolled expect to return to school for advanced education sometime during their careers. This "new majority" of working adults involved in graduate and first-professional education requires a set of services—both academic and administrative—quite different from those required for the traditional graduate student.

Implications for Future Demand for Postsecondary Education

Responses to B&B:93/97 indicate that one-fifth of 1992–93 bachelor's degree recipients either had already obtained an advanced degree or were participating in advanced study 4 years after college graduation. While that group represents an important segment of graduate enrollment, many of those who do not enter graduate school soon after receiving a bachelor's degree also have graduate degree expectations. In fact, 4 years after college graduation, 72 percent of the 1992–93 bachelor's degree recipients expected to earn a graduate or first-professional degree sometime during their careers. Most of these students expected to earn a master's degree and are likely to attend part time while employed full time.

Considering that approximately 1.2 million bachelor's degrees are granted in the United States each year, those expectations represent a substantial source of demand for graduate education. Of course, not all expectations will come to fruition, but even if one-half of all bachelor's degree recipients were to become involved in graduate or first-professional education, then this demand would push graduate and first-professional enrollment well above the current total of 2 million students.

Diversity and the New Majority

The B&B expectations data also reveal that the new majority graduate students are more diverse than the traditional group. Traditional graduate students are younger, are more likely to be male, and tend to be enrolled in doctoral or first-professional programs. In contrast, the new majority students are older, are more likely to be female, and are pursuing graduate-level certificates and master's degrees in a wide range of fields. According to the 1995–96 National Postsecondary Student Aid Study (NPSAS:96), the average age of master's degree students is 32, and more than a third are over the age of 35.

Both majority and minority group members recognize the need for postbaccalaureate education. In fact, black and Hispanic bachelor's degree recipients were more likely than white graduates to report expectations for advanced degrees. Four years after college, women and men had similar expectations, with 73 percent of women and 71 percent of men expecting to earn a graduate or first-professional degree.

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Responding to the Needs of the New Majority Graduate Student

The part-time enrolled/full-time employed graduate student presents many challenges to the university community. Most student-related systems were established during the period of rapid institutional expansion of the 1960s and early 1970s, when full-time attendance was the norm. Institutions have responded to the demands of the new majority students in a variety of ways, from the modification of university procedures and student services, to the creation of new graduate programs, to the founding of entire new institutions.

Admissions criteria are changing as well. Returning adult students are judged more on their undergraduate records and work experience than on standardized test scores. Responses to B&B:93/97 reflect the importance of undergraduate GPA, with bachelor's recipients with high grade-point averages twice as likely to apply as those with low grade-point averages and three times as likely to enroll. In addition, admissions offices increasingly need to work with students who may have earned graduate credits at other institutions and want to transfer credit to the new graduate program.

Providing services to students with full-time jobs often involves extending office hours in order to accommodate working adults. According to B&B:93/97, well over one-half of all master's students attend courses on weeknights or weekends. Many institutions are making increasing use of the Internet for publishing graduate school catalogs, for online admissions forms, and for course delivery.

There are many other services demanded by new majority students. These include, for example, child care, campus and parking facilities safe for nighttime access, career counseling, and financial aid for students attending on a part-time basis. Providing academic advising and mentoring and encouraging the formation of peer study groups are challenges for programs serving part-time students.

Not surprisingly, most financial support for graduate and first-professional study goes to full-time students. According to B&B:93/97, more than 60 percent of part-time students received no institutional, state, or federal support for graduate study and consequently financed their education from personal resources. The limited support that is available comes from employer-provided educational benefits, as well as from loans and fellowships. Universities, employers, and government agencies need to work together to streamline financial aid regulations to maximize the use of the modest amounts of support that are available for the part-time student.

New Programs, New Institutions

Because adult students have different expectations for program availability and content than their younger counterparts, institutions are developing new programs and degrees at the graduate level. One of the most exciting new programs is the graduate certificate. This certificate is designed for bachelor's degree recipients who are seeking a focused program of advanced study but who are not interested in committing the time necessary for a full master's degree program. The graduate certificate program is typically 12 to 18 credits in duration and is offered in a wide variety of fields, including information technology, gerontology, and women's studies.

Recognizing the growing demand for postbaccalaureate education, entire new institutions have been established to serve the working student. Walden University and the University of Phoenix are two examples of these new institutions. Walden was founded in 1970 to provide graduate-level education to working professionals. Using distance learning methods, students can earn master's and doctoral degrees from Walden without sacrificing family and career commitments.

The University of Phoenix, one of the best known institutions of this type, was established in 1976 as a for-profit institution with a mission to provide education to working adult students. Many University of Phoenix graduate programs require that the students be employed, especially the business and education programs. These programs have proved to be enormously popular, and today the University of Phoenix ranks first in the nation in total head count graduate enrollment, with over 13,000 graduate students.

Will Institutions Supply What Graduate Students Demand?

Over the past 30 years, U.S. graduate education has been transformed from an elite system for the few into a mass system for the many, enrolling more than 2 million students and annually granting more than 500,000 master's, doctoral, and professional degrees. The traditional view of graduate students as newly minted bachelor's degree recipients engaged full time in graduate study no longer reflects the current reality. To be sure, there are many graduate students—especially in doctoral and first-professional programs—that fit the traditional model. However, the decided majority of students pursuing graduate study are quite different from the traditional student. They are older, more often women, typically married, and have family and career responsibilities. These students present significant challenges and opportunities for U.S. graduate education.

For federal and state policymakers, the issue is fairly straightforward—how can we help make advanced education available for the working adult? For American universities, the questions are more complex and impact the central mission of these institutions. Universities need to review their missions to decide what kind of population they want to serve. Should institutions try to be all things to all people or focus their efforts somewhere along the continuum between preparing doctoral scholars and providing career training for the working professional?

Many institutions are caught between the interest of the faculty in preparing the next generation of doctoral scholars and the needs of the local community for career-related training. A university may decide to focus on doctoral training, but that will cede a substantial segment of the market to other providers, such as corporate universities and institutions like the University of Phoenix.

One of the most difficult issues faced by graduate schools is the maintenance of program quality in a part-time environment. The core values of graduate education—close student-faculty interaction, access to outstanding research facilities, advanced research on a focused topic, and peer-to-peer contact—are typically associated with full-time, campus-based programs. How can these values be maintained in a part-time, off-campus setting?

While the new part-time graduate and professional students present many challenges for the university community, they also present a number of opportunities. Institutions have the opportunity to serve a new and diverse population of students, expanding outreach to underrepresented populations. They have the opportunity to experiment with new programs and new delivery systems. And they have the opportunity to develop a new group of constituents interested in supporting their higher education system.

The B&B study provides an important set of data on the transition from bachelor's degree to graduate school and career. Used in combination with other NCES data sources such as NPSAS and the Integrated Postsecondary Education Data System (IPEDS), B&B provides a rich view of the changing face of U.S. graduate education.

Invited Commentary: Baccalaureate and Beyond: Tracking Long-Term Outcomes for Bachelor's Degree Recipients

Dawn Geronimo Terkla, Executive Director, Institutional Research, Tufts University

This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

For several decades, the question of the value of a postsecondary education has been debated. Numerous studies have been conducted to establish measures that reflect the worth of a college degree. The featured report, *Life After College: A Descriptive Summary of 1992–93 Bachelor's Degree Recipients in 1997*, does not attempt to estimate the value of a bachelor's degree but rather provides another chapter in describing the story of individuals who achieve at least a bachelor's degree. The report includes extensive data on these individuals' enrollment and employment experiences. Four years after completing their baccalaureate degrees, for example, 30 percent of the 1992–93 bachelor's degree recipients had enrolled in graduate or professional school, 21 percent had either attained a degree or were currently enrolled, and 89 percent were employed. Only a very small percentage of individuals were neither employed nor enrolled in graduate or professional school. In fact, the unemployment rate for these bachelor's degree recipients was 2.9 percent, somewhat below that of the overall U.S. unemployment rate for adults ages 25 and older.

The value of the 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97), is that it provides another milepost in our examination and understanding of life after college. Initial mileposts were provided with B&B's predecessors, the National Longitudinal Study of the Class of 1972 (NLS:72/86) and High School and Beyond (HS&B:80/92). It will prove to be a valuable exercise to examine whether and how the experiences of bachelor's degree recipients have changed or remained similar over the past 2 decades. In addition, B&B is the first longitudinal study specifically intended to track bachelor's degree recipients. B&B includes a larger number of bachelor's degree recipients than its predecessors and will follow them for a greater number of years after college graduation.

One of the major advantages of a national longitudinal study of this type is that it provides an accurate description that is based on a nationally representative sample rather than on anecdotal information. Furthermore, the value of a baccalaureate degree transcends time: not all individuals march to the same drummer and pursue advanced training or careers in a lock-step pattern. Because individuals' paths vary substantially, it is extremely useful to examine behaviors (both career histories and postbaccalaureate pursuits) at various points after initial receipt of the baccalaureate degree.

If the choice is made not to view outcomes at various points in time, the conclusions one draws may in fact be quite flawed. When 1992–93 bachelor's degree recipients were interviewed in 1993, for example, a higher percentage of women than of men intended to pursue advanced degrees; 4 years later, however, the percentage of men and women who had actually enrolled was comparable. Will this situation remain constant, or will the proportions change again? Among those who had actually enrolled in advanced degree programs by 1997, men were more likely than women to be pursuing an MBA, doctoral, or first-professional degree. It is interesting to contemplate whether the next 10 years will find a larger share of enrolled women pursuing MBA, doctoral, and first-professional degrees. Will there eventually be a homeostasis, with equal proportions of men and women obtaining comparable advanced degrees in similar programs? The B&B study has the potential to address such unanswered questions.

B&B:93/97 data lend themselves to a description of student degree aspirations at the time of graduation, changes in these aspirations after 4 years, and steps taken to prepare for advanced training. However, it is unfortunate that the data do not lend themselves to answering the question of *why* individuals decided to pursue graduate and first-professional degrees. While there appears to be a relationship between type of institution attended, undergraduate academic performance, the pursuit of training beyond the baccalaureate level, and retention within the graduate program, one wonders if there are also relationships between initial motivations for pursuing an advanced degree, actual pursuit of that degree, and ultimate attainment of the degree.

What is somewhat perplexing is that 85 percent of 1992–93 bachelor's degree recipients indicated at the time of graduation that they intended to complete a graduate or professional degree, but 4 years later only 21 percent had either attained an advanced degree or were currently enrolled in a program. In all likelihood, additional 1992–93 bachelor's degree recipients will reenter higher education. Thus, it seems critical, if not imperative, that the longitudinal aspect of this study be continued in order to determine the proportion of bachelor's degree recipients who ultimately achieve their educational aspirations. It would be most worthwhile to carry through with plans to survey these individuals again in 2002 and perhaps also in 2005.

While the data are somewhat deficient in providing critical information regarding individuals' reasons for pursuing graduate training, B&B:93/97 does provide valuable information from which one is able to gain insights about why individuals selected their current jobs and how they obtained these jobs, as well as how satisfied they are with their current employment situations. In addition, this second follow-up of B&B provides a wealth of information for researchers who are interested in examining the relationships between undergraduate major and employability, field of employment, and average earnings. While some work has been done, using data from the first B&B follow-up (B&B:93/94), to examine the relationships among undergraduate majors, career choices, and average salaries, it will be interesting to determine whether similar relationships continue to exist over time. The B&B:93/97 data seem to support the notion that one's undergraduate major does have an impact on average salary 4 years after graduation and that arts and science majors earn less than those with degrees in professional fields. However, it will be important to determine whether the long-term earning potential of individuals will vary according to their choice of undergraduate major or whether other intervening variables will have a stronger long-term impact on earnings.

Given that this cohort was part of the 1993 National Postsecondary Student Aid Study (NPSAS:93), the level of detail regarding the financing of these individuals' undergraduate education is extensive. B&B:93/97 provides an opportunity to examine the impact of loans on both postbaccalaureate and career choices. While it appears that the amount of money borrowed to finance undergraduate education is not related to employment choices, it will be very interesting to explore whether any relationships exist between borrowing, amount of borrowing, career choices, and satisfaction with one's career. We may also learn that over time loan indebtedness will have less of an impact on further educational pursuits, putting to rest the conventional wisdom that loans have a major impact on the pursuit of advanced training. Although borrowers were slightly less likely than nonborrowers to have applied to graduate and professional schools as of 1997, perhaps more borrowers will apply after they have been repaying their loans for several years and have reduced their undergraduate debt. As of 1997, borrowing did not seem to be related to enrollment rates among those individuals who had applied. Analyzing relationships among these and other variables will provide a greater understanding of the impact of undergraduate borrowing on major life choices.

The higher education community is indeed fortunate to have a data set that will afford innumerable opportunities to examine a host of questions regarding the outcomes of bachelor's degree recipients over an extended period of time. This rich source of information not only provides data that are useful to inform public policy decisions, but also provides comparative data for individual institutions. There is no doubt that B&B:93/97 will be mined extensively and will yield volumes describing life after the baccalaureate.

ELEMENTARY AND SECONDARY EDUCATION

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Participation of Kindergartners Through Third-Graders in Before- and After-School Care

DeeAnn W. Brimhall, Lizabeth M. Reaney, and Jerry West

This article was originally published as a Statistics in Brief report. The sample survey data are from the "Early Childhood Program Participation" (ECPP) component of the National Household Education Survey (NHES). Methodology and technical notes from the original report have been omitted, along with supplementary tables.

Approximately 39 percent of the nation's primary school children (i.e., kindergartners through third-graders) receive some form of nonparental care before and/or after school on a weekly basis. They spend an average of 14 hours per week in this care. These findings come from the National Center for Education Statistics (NCES) 1995 National Household Education Survey (NHES:95) and highlight the importance of looking at before- and after-school care for children during their early school years.

The care children receive before and after school concerns parents, practitioners, researchers, and policymakers. The major concern centers on how children spend their out-of-school time. The majority of children's waking hours (70 to 90 percent) is spent outside of school (Miller 1995; Seppanen et al. 1993). This time represents an enormous opportunity for learning social skills and developing interests, and the way this time is spent has been linked to achievement (Seligson 1997). Organized programs for the

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provision of this care and enrichment have been noted to be especially vital for kindergartners through third-graders (Seppanen et al. 1993). Before- and after-school care for kindergartners is of special interest, because many of these children are only in school for part of the day, so the care and education they receive for the rest of the day is of great concern.

School-age children's care and developmental needs differ greatly from those of younger children, and the type of care they receive may impact their social, emotional, and cognitive development, as well as their school performance (Miller and Marx 1990; Pierce, Hamm, and Vandell 1999; Vandell and Corasaniti 1988). Before- and after-school care has the potential to have both positive and negative effects on children's development, depending on the characteristics of the care arrangement. Children's successful school adjustment is related to their experiences in after-school programs. For example, first-grade boys attending programs where the staff was positive were rated by school teachers as having fewer internalizing and externalizing problems (Pierce, Hamm, and Vandell 1999). First-grade girls experiencing positive interaction with after-school staff also exhibited fewer internalizing behaviors in school (Pierce, Hamm, and Vandell 1999). On the other hand, other research has found that third-graders (predominately middle class) in center-based care have lower scores on standardized tests and lower grades in school than children in other types of care (Vandell and Corasaniti 1988). In this study, though, center quality was not controlled; it was, in fact, noted to be questionable at many sites, perhaps explaining the negative findings.

Findings from research examining the potential effects of self-care are contradictory as well. School performance has been shown to decline with unsupervised care, and less peer contact after school seems to contribute to feelings of isolation and loneliness (Miller and Marx 1990). However, Vandell and Corasaniti (1988) found middle-class third-graders in self-care to be comparable to children solely in maternal care for school grades and test scores.[1]

While prior research indicates that self-care is more prevalent in middle childhood (e.g., Hofferth et al. 1991; Seppanen et al. 1993), it is of equal interest in the primary grades. Self-care seems to be an established arrangement as early as 7 or 8 years of age (Seppanen et al. 1993 citing Divine-Hawkins 1992). It tends to increase during the school years, varying with maternal employment status (i.e., full versus part time) (Casper, Hawkins, and O'Connell 1994; Hofferth et al. 1991).

Several changes in family employment have contributed to an increasing demand for before- and after-school care for children of all ages. The growing number of women in the labor force, as well as an increase in single-parent families, impacts the need for before- and after-school care by limiting the ability of parents to care for their children immediately before and after school (Hofferth et al. 1991; Seppanen et al. 1993).

This report contains information from NHES:95 on the before- and after-school care arrangements of children in kindergarten through third grade. It examines characteristics of these arrangements that are of key public interest—participation rates, average time spent in care, and out-of-pocket expenses.

First, this report describes children's overall participation in before- and/or after-school care by type of arrangement (i.e., home-based relative care, home-based nonrelative care, center-based care, and self-care). Included in the description of care that takes place after school is an examination of the characteristics of children (e.g., race/ethnicity and grade level) and their families (e.g., mother's education and employment status) that have been shown to be related to participation rates in prior research (Casper, Hawkins, and O'Connell 1994; Hofferth et al. 1998; Hofferth et al. 1991; Seppanen et al. 1993).

Second, this report describes the amount of time primary school children spend in care on a weekly basis. The amount of time children under the age of 6 spend in care varies by such characteristics as family type, maternal employment, and race/ethnicity (Hofferth et al. 1998). Time in care is a critical issue for school-age children, especially kindergartners, since a significant amount of their time is spent outside of school.

Finally, this report describes the out-of-pocket expense to families for before- and after-school care. Cost is one constraint on parents' decisions on the type of care chosen, and it varies by several child and family characteristics, including maternal employment, family type, and income. For example, families with higher incomes tend to pay more for care (Hofferth et al. 1991).

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[1] For a more extensive review of the influence of early child care and education programs on children's development, refer to Hofferth et al. (1998) or Seppanen et al. (1993).

National Data on Participation in Before- and After-School Care

The "Early Childhood Program Participation" component of NHES was developed to collect information on children's experiences in a wide range of care settings, including their homes, the homes of others, and formal group settings. This component was first fielded in 1991 and repeated in 1995. However, the 1995 survey was the first to include significant information on the before- and after-school care of primary school children. Because parents are considered by definition to be their children's primary care providers, NHES does not include parents as providers of supplemental care. Instead, it seeks to provide data to estimate how many children receive care on a regular basis from *persons other than their parents*.[2, 3]

Participation in nonparental before- and after-school care by grade

Children may receive before- and after-school care in home-based or in center-based settings. Home-based arrangements may take place either in a child's own home or in the home of someone else. This care may be provided by a relative (other than the child's parents) or a nonrelative, or in some cases, the child may be caring for himself or herself. Center-based programs, on the other hand, provide children with care in a nonresidential setting.[4]

There are many ways of calculating children's participation rates in various before- and after-school care arrangements. This report uses a prevalence rate that represents the percentage of children receiving care in each type of arrangement on a weekly basis. In calculating this aggregate rate, no consideration is given to either the number of hours a child spends in one setting as compared to others or a parent's activities (e.g., whether or not a child's mother works) while the child is in nonparental care. Moreover, a child may be counted under several arrangements, if he or she spends time in more than one setting.

During the spring of 1995, approximately 39 percent of kindergartners through third-graders were receiving some type of before- and/or after-school care on a weekly basis from persons other than their parents (table 1). This translates to more than 6.1 million primary school children. Overall, these children are more likely to spend time in nonparental care after school than before school. When in the care of someone other than their parents, they are most likely to be cared for by a relative and least likely to be cared for by a nonrelative. Overall, very few children care for themselves before and/or after school.

In general, a greater proportion of part-day[5] kindergartners than of children in the first through third grades participate in some form of nonparental care arrangements. With regard to care that takes place before school, 23 percent of part-day kindergartners receive some type of nonparental care in comparison to 15 percent of first-graders, 15 percent of second-graders, and 14 percent of third-graders. For after-school care, there is no significant difference between kindergartners and first- and second-graders.

Kindergartners are no more likely than first- through third-graders to be cared for by a relative before or after school. Part-day kindergartners are, however, more likely to be cared for by a nonrelative in a private home than first- through third-graders. This is true overall (15 percent versus 9 percent each for first- through third-graders) and for care taking place after school (13 percent versus 8 percent each for first- through third-graders). Part-day kindergartners are also more likely to be cared for by a nonrelative than first- and second-graders (7 percent versus 4 percent each for first- and second-graders) before school. The apparent differences in participation rates in nonrelative care between part-day and full-day kindergartners are not statistically significant. With regard to center-based care, there are no significant differences in participation rates between kindergartners, first-graders, and second-graders.

Only a small percentage of primary school children are in self-care before or after school. Overall, 2 percent of first- through third-graders care for themselves. There are no significant differences in self-care between second- and third-graders (2 and 3 percent, respectively). In 1990, the National Child Care Survey found that 2.2 percent of 5- to 7-year-olds cared for themselves (Hofferth et al. 1991); thus, the numbers found here are similar (2 percent of first- through third-graders).

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[2] Throughout this report, "parents" represent biological, adoptive, step, and foster parents.

[3] For a review of other national data on before- and after-school care, see the end of the complete report.

[4] In this report, the term "center-based programs" refers to all nonresidential care programs, including those programs located in or sponsored by a public or private school, a church, or an employer, and programs that are independent.

[5] In this report, "part-day kindergarten programs" include those identified as morning-only or afternoon-only programs.

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Table 1—Percentage of children in kindergarten through third grade participating in before- and after-school care on a weekly basis, by type of arrangement and grade: 1995

Grade	Children		Type of nonparental care arrangement[1]					No nonparental care arrangement (percent)
	Number (in thousands)	Percent	Total (percent)	In relative care (percent)	In nonrelative care (percent)	In center-based program (percent)	Self-care[2] (percent)	
Kindergarten–third grade	15,663	100						
Total			39	17	10	14	2	61
Before school			16	6	5	5	N/A	84
After school			35	16	9	13	N/A	65
Kindergarten								
Part day	2,082	13						
Total			43	15	15	16	N/A	57
Before school			23	8	7	8	N/A	77
After school			40	13	13	15	N/A	60
Full day	1,982	13						
Total			42	18	11	17	N/A	58
Before school			18	6	5	7	N/A	82
After school			40	17	10	16	N/A	60
First grade	3,935	25						
Total			38	16	9	14	—	62
Before school			15	6	4	5	N/A	85
After school			35	15	8	13	N/A	65
Second grade	3,716	24						
Total			39	18	9	13	2	61
Before school			15	6	4	4	N/A	85
After school			35	17	8	12	N/A	65
Third grade	3,947	25						
Total			36	16	9	12	3	64
Before school			14	5	5	4	N/A	86
After school			32	15	8	11	N/A	68

N/A: Not available.

[1] Columns do not add up to total because some children participated in more than one type of nonparental arrangement.

[2] The item regarding self-care was not asked of respondents whose sampled child was in kindergarten, and information on self-care is not available separately for before- and after-school care.

NOTE: — indicates that the estimate has been suppressed because it is based on fewer than 30 cases. Details may not add to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Early Childhood Program Participation" (ECPP) component, 1995.

Participation in after-school care by child and family characteristics

As shown in table 1, during the spring of 1995 the majority of nonparental care took place after school. Consequently, this report focuses on the after-school care arrangements of kindergartners through third-graders when discussing participation rates by child and family characteristics.[6, 7]

Black children are more likely to receive after-school care than children of any other race or ethnicity. About 45 percent of black children, compared with 34 percent of white children and 31 percent of Hispanic children, receive care after school on a weekly basis from persons other than their parents (table 2).[8]

While participation in after-school care does not differ by household income, there are differences by family type. Children living with only one parent or no parents[9] are more likely than children living with both a mother and

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[6] The characteristics discussed are likely to be highly interrelated. While acknowledging this, this report will look at each separately when examining the relationship between child and family characteristics and before- and after-school care.

[7] For information on participation rates for before-school care and for before- and after-school care combined, see tables A1 and A2 at the back of the complete report.

[8] If an interviewer contacted an individual who preferred to conduct the interview in Spanish, a Spanish-speaking interviewer and survey instrument were used. Also, in this report, the terms "white" and "black" are used to describe "white, non-Hispanic" and "black, non-Hispanic" children.

[9] "No parents" includes children living with one or more nonparental guardians (e.g., grandparents or siblings).

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Table 2—Percentage of children in kindergarten through third grade participating in after-school care on a weekly basis, by type of arrangement and child and family characteristics: 1995

Characteristic	Children		Type of nonparental care arrangement[1]				No nonparental care arrangement (percent)
	Number (in thousands)	Percent	Total (percent)	In relative care (percent)	In nonrelative care (percent)	In center-based program (percent)	
Total	15,663	100	35	16	9	13	65
Race/ethnicity							
White, non-Hispanic	10,637	68	34	13	10	12	66
Black, non-Hispanic	2,318	15	45	24	5	19	55
Hispanic	1,928	12	31	19	7	7	69
Other	780	5	34	12	—	18	66
Income							
$10,000 or less	2,758	18	31	18	5	10	69
$10,001 to $20,000	1,938	12	33	18	9	10	67
$20,001 to $30,000	2,563	16	35	18	7	10	65
$30,001 to $40,000	2,332	15	37	17	10	12	63
$40,001 to $50,000	1,774	11	36	15	11	11	64
$50,001 to $75,000	2,457	16	39	13	10	18	61
More than $75,000	1,841	12	38	8	11	20	62
Family type							
Two parents	11,202	72	30	12	8	11	70
One or no parents	4,460	28	48	24	10	17	52
Mother's education[2]							
Less than high school	1,968	13	21	12	3	7	79
High school/GED	5,496	36	34	18	8	10	66
Vocational/technical or some college	4,491	30	38	17	10	13	62
College graduate	2,325	15	37	11	10	17	63
Graduate or professional degree	941	6	46	9	14	25	54
Mother's employment status[2]							
35 hours or more per week	6,046	40	61	25	15	23	39
Less than 35 hours per week	3,258	21	31	15	9	9	69
Looking for work	817	5	20	—	—	9	80
Not in labor force	5,100	34	9	5	2	3	91

[1] Columns do not add up to total because some children participated in more than one type of nonparental arrangement.

[2] Children without mothers are not included in estimates dealing with mother's education or mother's employment status.

NOTE: — indicates that the estimate has been suppressed because it is based on fewer than 30 cases. Details may not add to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Early Childhood Program Participation" component, 1995.

father to participate in an after-school care arrangement (48 percent compared to 30 percent).

Children whose mothers did not complete high school are less likely to receive after-school care (21 percent) than children whose mothers graduated from high school or earned a GED (34 percent), attended some college (38 percent), graduated from college (37 percent), or earned a graduate degree (46 percent).

Children are also more likely to participate in after-school care when their mothers work. About 61 percent of children whose mothers work full time (35 hours or more per week) and 31 percent of children whose mothers work part time (less than 35 hours per week) receive after-school care on a weekly basis from a nonparental caregiver. In contrast, 9 percent of kindergartners through third-graders whose mothers are not in the workforce receive after-school care from persons other than their parents.

Participation in different types of after-school care by child and family characteristics

The setting in which children receive care after school is related to children's race/ethnicity (table 2). Black (24 percent) and Hispanic (19 percent) children are more likely than white children (13 percent) to be in relative care, while they are less likely to be in nonrelative care (5 and 7 percent, respectively, versus 10 percent). Nineteen percent of black children are enrolled in a center-based program after school—an enrollment rate greater than that of both white (12 percent) and Hispanic (7 percent) children (rates that are also significantly different from each other).

Differences in children's after-school care participation rates are also related to household income. Eight percent of children living in households with annual incomes of more than $75,000 are cared for by a relative after school. This participation rate is significantly less than the rates for children in other income groups, except for those children in the $50,001 to $75,000 group. Children living in households with an annual income of $10,000 or less are less likely to be cared for by a nonrelative in a private home than children in other income groups, except for those in the $20,001 to $30,000 group. With regard to care taking place in a center-based setting, children living in households with incomes over $50,000 are more likely than children living in households with incomes of $50,000 or less to be enrolled in a center-based program after school, except for those living in households with incomes between $30,001 and $40,000.

Children living in two-parent families are less likely than children living with one parent or with no parents to be cared for after school by a relative (12 percent versus 24 percent) or to be enrolled in a center-based program (11 percent versus 17 percent).

A mother's education is also significantly related to children's participation in nonparental after-school care arrangements. Children whose mothers did not graduate from high school are less likely than those whose mothers graduated from high school or attended some college to be cared for by either a relative (12 percent versus 18 and 17 percent, respectively) or a nonrelative (3 percent versus 8 and 10 percent, respectively) after school. Fewer children whose mothers graduated from college with a bachelor's or an advanced degree (11 and 9 percent, respectively) are cared for by a relative after school than children whose mothers graduated from high school or attended some college (18 and 17 percent, respectively). The difference in participation rates for nonrelative care is also significant for children whose mothers graduated from high school (8 percent) and those whose mothers obtained an advanced degree (14 percent). Children whose mothers did not graduate from high school are also less likely to be cared for by a nonrelative after school than children whose mothers graduated from college with a bachelor's or an advanced degree.

Finally, in regard to participation in center-based care programs, there are also several significant differences by a mother's education. Children whose mothers obtained an advanced degree are more likely than children whose mothers did not obtain at least a bachelor's degree to attend a center-based program after school. Similarly, children whose mothers obtained a bachelor's degree are also more likely than children whose mothers did not attend school beyond high school to participate in a center-based program, and children whose mothers attended some college are more likely than children whose mothers did not graduate from high school to participate in a center-based after-school care program (13 percent versus 7 percent).

With few exceptions, all comparisons of participation rates between children by mother's employment status are significant. Children whose mothers work 35 hours or more per week are the most likely, while children whose mothers are not in the labor force are the least likely, to spend time with a nonparental caregiver after school, regardless of who provides the care or the setting in which the care takes place.

Average Number of Hours Children Spend in Nonparental Care per Week

NHES:95 collected information on the number of hours per week children spend in nonparental care. As respondents were not asked to distinguish time spent in care before school versus time spent in care after school, the data on average hours presented in this report are for the combined total of time spent in nonparental care before and after school. Children who did not spend any time with a nonparental caregiver on a weekly basis are excluded from this discussion.

Kindergartners through third-graders participating in care spend an average of 14 hours per week being cared for by someone other than their parents, either before or after school (table 3). Some first-, second-, and third-graders care for themselves before or after school 1 or more days a week. On the average, this self-care takes place about 5 hours a week.

When all types of care arrangements are considered, both part-day (20 hours) and full-day (15 hours) kindergartners spend more time than first-, second-, and third-graders (12 hours, 13 hours, and 12 hours, respectively) in nonparental care before and after school. However, when the settings and types of caregivers are examined separately, only the average hours spent in nonparental care by part-

Table 3—Average number of hours children in kindergarten through third grade spend in before- and after-school care on a weekly basis, by type of arrangement and child and family characteristics: 1995

	Children		Type of nonparental care arrangement[1]				
Characteristic	Number (in thousands)	Percent	Total (avg. hours)	In relative care (avg. hours)	In nonrelative care (avg. hours)	In center-based program (avg. hours)	Self-care[2] (avg. hours)
Total	5,548	100	14	14	13	12	5
Grade							
Kindergarten							
Part day	823	15	20	18	16	21	N/A
Full day	797	14	15	15	13	13	N/A
First grade	1,366	25	12	13	12	11	—
Second grade	1,289	23	13	13	12	10	6
Third grade	1,273	23	12	13	11	10	5
Race/ethnicity							
White, non-Hispanic	3,634	65	13	12	12	13	5
Black, non-Hispanic	1,040	19	16	18	14	11	—
Hispanic	607	11	15	14	17	13	—
Other	267	5	16	18	—	13	—
Income							
$10,000 or less	851	15	14	14	13	13	—
$10,001 to $20,000	644	12	17	16	15	14	—
$20,001 to $30,000	891	16	15	15	14	12	—
$30,001 to $40,000	864	16	14	13	12	12	—
$40,001 to $50,000	635	11	13	12	15	13	—
$50,001 to $75,000	958	17	12	13	9	13	—
More than $75,000	705	13	13	13	13	12	—
Family type							
Two parents	3,418	62	12	12	12	12	5
One or no parents	2,130	38	16	16	14	13	6
Mother's education[3]							
Less than high school	410	7	15	15	15	13	—
High school/GED	1,872	34	14	13	14	12	5
Vocational/technical or some college	1,726	31	14	14	12	13	—
College graduate	864	16	13	13	11	12	—
Graduate or professional degree	433	8	13	14	11	11	—
Mother's employment status[3]							
35 hours or more per week	3,694	67	15	14	14	13	6
Less than 35 hours per week	1,005	18	11	12	8	10	—
Looking for work	164	3	15	—	—	11	—
Not in labor force	440	8	11	11	9	10	—

N/A: Not available.

[1] The averages presented in the table are based only on those children receiving nonparental care.

[2] The item regarding self-care was not asked of respondents whose sampled child was in kindergarten.

[3] Children without mothers are not included in estimates dealing with mother's education or mother's employment status.

NOTE: — indicates that the estimate has been suppressed because it is based on fewer than 30 cases. Details may not add to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Early Childhood Program Participation" (ECPP) component, 1995.

day kindergartners are significantly greater than those of first- through third-graders.

Overall, white children (13 hours) spend less time than black or Hispanic children (16 and 15 hours, respectively) in nonparental care. Black children (18 hours) spend more time than Hispanic and white children (14 and 12 hours, respectively) in relative care arrangements. On the other hand, white children (12 hours) spend less time in nonrelative care arrangements than Hispanic children (17 hours) and more time in center-based before- and after-school care programs than black children (13 versus 11 hours).

When all types of arrangements are considered, children from lower income households spend more hours per week in nonparental care arrangements than children from higher income households. However, when looking at hours by type of arrangement, there are no statistically significant trends.

Kindergartners through third-graders who reside with only one parent or with no parents spend more hours per week in nonparental care arrangements than children living with two parents (16 hours versus 12 hours). This difference remains significant when looking at children participating in relative care and nonrelative care arrangements individually (16 versus 12 hours and 14 versus 12 hours, respectively).

While hours spent in care do not significantly vary by a mother's education, they do differ by a mother's employment status. Children whose mothers work full time (35 hours or more per week) spend more time in nonparental before- and after-school care arrangements than children whose mothers work part time or are not in the labor force (15 hours versus 11 and 11 hours, respectively). Only the difference between children whose mothers work full time and those whose mothers work part time remains significant when each type of care is considered individually (i.e., 14 hours versus 12 hours in relative care, 14 hours versus 8 hours in nonrelative care, and 13 hours versus 10 hours in a center-based program).

Average Cost of Nonparental Care per Week

The out-of-pocket cost for families of before- and after-school care varies widely. Obviously, differences in the amount charged for care by care providers are a major source of the variation. Yet, there are also differences because some care providers do not charge a fee (e.g., grandparents and older siblings) and some families do not have to pay for all or a portion of the care because it is covered or subsidized by someone else (e.g., a local government agency or an employer). Because NHES:95 only collected data on families' out-of-pocket cost for nonparental care, the discussion of average cost of care in this report is limited to families who pay for at least part of their child's before- and after-school care. Children who did not spend any time with a nonparental caregiver on a weekly basis are excluded from this discussion.

Families who pay for the nonparental care of their kindergartners through third-graders spend an average of $33 a week for before- and after-school care (table 4). Families pay less for relative care than they do for care in center-based programs. This difference would most likely be even larger if free care were included in the cost estimates, because a larger percentage of relative care arrangements have no cost for parents. To include this free care would dramatically decrease the average cost of relative care, making the difference in cost between types even more striking.

There are not a lot of differences in cost of care by child and family characteristics. In fact, no significant differences are found when looking at children's race/ethnicity or their family type. When looking at children's grade in school, there are, however, some differences by grade in the average weekly cost of center-based programs. With an average expenditure of $51 per week, families of part-day kindergartners pay more for care than families of full-day kindergartners ($33), first-graders ($30), second-graders ($27), and third-graders ($30). Most likely, this difference is due to the fact that part-day kindergartners spend more hours a week in nonparental care arrangements because they spend fewer hours a week in school.

Parents of children living in households with annual incomes of more than $75,000 spend more for care per week than parents of children living in households with incomes between $10,000 and $50,000. While it appears that high-income households (i.e., more than $75,000) pay more for care than households with annual incomes of $10,000 or less ($55 a week versus $31), the difference is not statistically significant.

If a child's mother graduated from college, his or her family spends more for center-based care per week than the families of children whose mothers did not attend school beyond high school ($40 a week versus $28 a week).

When all care types are considered, families of children whose mothers work full time spend more per week for nonparental care than families of children whose mothers only work part time ($35 versus $25). This is almost exactly as reported by Hofferth et al. (1991).

Summary

In general, part-day kindergartners are more likely to receive before- and after-school care than children in first through third grade. More children, overall, receive care after school than before school and in home-based relative care than in either home-based nonrelative or center-based arrangements. For home-based arrangements, the differences in participation rates between relative and nonrelative care vary depending on the characteristics of children and their families. Children who are members of a racial/ethnic minority group, who live in households with annual incomes of less than $75,000, or whose mothers have a high school diploma or attended some college are more

Table 4—Average weekly cost for nonparental before- and after-school care occurring on a weekly basis for children in kindergarten through third grade, by type of arrangement and child and family characteristics: 1995

Characteristic	Children: Number (in thousands)	Children: Percent	Type of nonparental care arrangement[1]: Total (avg. cost)	In relative care (avg. cost)	In nonrelative care (avg. cost)	In center-based program (avg. cost)
Total	2,482	100%	$32.81	$25.71	$33.43	$33.50
Grade						
Kindergarten						
Part day	473	19	38.35	26.18	30.77	50.78
Full day	356	14	37.43	—	40.82	32.96
First grade	590	24	31.40	26.61	33.71	30.37
Second grade	554	22	31.60	21.17	39.08	26.62
Third grade	509	21	27.40	24.88	24.58	30.18
Race/ethnicity						
White, non-Hispanic	1,826	73	33.55	22.21	34.56	34.66
Black, non-Hispanic	273	11	29.10	30.50	—	27.07
Hispanic	239	10	28.87	28.78	25.45	31.49
Other	145	6	36.96	—	—	33.04
Income						
$10,000 or less	251	10	30.61	28.03	—	—
$10,001 to $20,000	255	10	26.90	23.44	26.15	29.33
$20,001 to $30,000	359	14	24.40	19.49	23.89	27.86
$30,001 to $40,000	385	16	28.99	24.42	26.47	32.29
$40,001 to $50,000	266	11	27.17	—	27.73	24.89
$50,001 to $75,000	557	22	31.19	29.37	23.63	36.60
More than $75,000	409	16	54.71	—	67.95	40.66
Family type						
Two parents	1,780	72	33.10	24.53	33.82	33.64
One or no parents	703	28	32.09	27.46	32.23	33.12
Mother's education[2]						
Less than high school	126	5	24.47	—	—	—
High school/GED	769	31	28.67	26.84	28.54	28.47
Vocational/technical or some college	755	30	28.27	19.79	24.39	35.02
College graduate	492	20	37.22	28.32	33.82	40.46
Graduate or professional degree	247	10	52.07	—	75.76	27.71
Mother's employment status[2]						
35 hours or more per week	1,724	69	35.24	27.06	38.23	33.68
Less than 35 hours per week	482	19	24.92	18.74	24.86	27.19
Looking for work	—	—	—	—	—	—
Not in labor force	128	5	25.78	—	—	—

[1] The averages presented in the table are based only on those children receiving nonparental care. The averages also exclude families who do not pay for nonparental care.

[2] Children without mothers are not included in estimates dealing with mother's education or mother's employment status.

NOTE: — indicates that the estimate has been suppressed because it is based on fewer than 30 cases. Details may not add to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), "Early Childhood Program Participation" component, 1995.

likely to be cared for by relatives after school. Children who live in households with annual incomes of $30,000 or more, or who are white, are more likely to be cared for by nonrelatives after school. Participation in nonrelative care after school also varies by maternal education; children whose mothers have at least a high school education are more likely to be cared for by a nonrelative after school than those whose mothers did not graduate from high school. Children's participation in center-based programs after school increases with household income and mother's education.

Rates of participation in after-school care are higher for children who do not live with two parents or who have mothers employed full time than for children who live with two parents or whose mothers are not in the labor force. And while self-care occurs rarely with primary school children, it increases as children get older.

Time in nonparental care before and after school and the cost of this care also vary by the characteristics of children and their families. Part-day kindergartners spend more time in care overall than other primary school children (including full-day kindergartners), most likely because they are in school fewer hours per week. Children who are members of a racial/ethnic minority group, who do not live with two parents, or who have mothers who are employed full time are more likely to spend a greater number of hours in nonparental care than children who live with two parents, who are not members of a racial/ethnic minority group, or whose mothers work part time or are not in the labor force at all. Time spent in care does not vary by mother's education. With regard to cost, families pay less for relative care than for center-based care. The cost of center-based care varies by grade, with more dollars per week spent on the care of part-day kindergartners than other primary school children. Families spend more money on nonparental care for children who live in higher income households (more than $75,000) or whose mothers work full time, while no differences exist in the cost of care by race/ethnicity or family type.

This report presents descriptive data on the participation of primary school children in before- and after-school care. NHES:95 data, however, can be used to answer other questions about before- and after-school care and its relationship to a wide range of child and family characteristics. For example, the differences in participation by race/ethnicity may be related to the number of black children living in single-parent families where the mother, as the sole provider, is required to work more hours (U.S. Department of Health and Human Services 1998). Data from NHES:95 can be used to answer the question, are black children more likely to receive after-school care because they are more likely to live in single-parent homes? And, regardless of race/ethnicity, are children in single-parent families more likely to have a parent who is employed full time, impacting the type of care used, the number of hours children spend in care, and the cost of the care?

Another area that can be further investigated with this national data set concerns the differences in before- and after-school participation across levels of maternal education. These differences may be in part related to differences in employment status of women with more or less education. Not only are mothers with a higher level of education more likely to be in the labor force, but they are more likely to be working full time and at a higher level of pay (Rindfuss, Morgan, and Offutt 1996; Women's Bureau 1999). These differences may relate to the number of children requiring care before or after school, the number of hours in care, and the type of care chosen based on its affordability and other factors.

Finally, NHES:95 data can be used to answer questions about public and private before- and after-school care. For example, what percentage of children receive before- and/or after-school care from public versus private providers? What are the characteristics of children and families who receive care from private as compared to public providers? These questions and those cited above represent only a small sample of the diverse questions that can be addressed with this national data set in order to further describe the care of primary school children before and after school.

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To obtain the Statistics in Brief (NCES 1999–013), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov)*.

Student Computer Use

This article was originally published as an Indicator of the Month, taken from* The Condition of Education: 1998. *The sample survey data are from the National Assessment of Educational Progress (NAEP) and the U.S. Census Bureau's October Current Population Survey (CPS).

Computers have become an essential tool in our society. Early exposure to computers may help students gain the computer literacy that will be crucial for future success in the workplace. Access to computers at school and at home allows students to retrieve information, manipulate data, and produce results efficiently and in innovative ways. Examining the extent to which students have access to computers at school and at home may be an indicator of how well prepared students will be to enter an increasingly technological workplace.

- Between 1984 and 1996, the percentage of 4th-, 8th-, and 11th-graders who reported using a computer at school at least once a week increased substantially.
- The youngest students were more likely than older students to report that they used computers at school. In 1996, 72 percent of 4th-graders reported using a computer at school at least once a week, compared to 47 percent of 8th-graders and 50 percent of 11th-graders. However, 8th- and 11th-graders were more likely than 4th-graders to report using computers every day.
- In 1996, 79 percent of 4th-graders, 91 percent of 8th-graders, and 96 percent of 11th-graders reported using a computer at home or at school to write stories or papers, a substantial increase from 1984. The percentage of students who used a computer to learn

Percentage of students who reported using a computer at school, by grade and frequency of use: 1984–96

	Grade 4						Grade 8						Grade 11					
Frequency of use	**1984**	**1988**	**1990**	**1992**	**1994**	**1996**	**1984**	**1988**	**1990**	**1992**	**1994**	**1996**	**1984**	**1988**	**1990**	**1992**	**1994**	**1996**
Never	61.2	29.8	18.9	16.5	14.0	11.4	66.7	41.8	40.5	37.6	27.7	23.3	55.0	44.7	44.9	27.2	26.1	16.0
Less than once a week	12.5	17.4	14.5	22.0	15.8	16.3	17.0	22.2	19.3	23.9	26.9	29.2	20.9	24.0	26.5	31.5	30.9	34.2
Once a week	15.5	34.2	41.1	37.0	39.6	36.0	8.1	13.9	12.9	12.8	16.1	14.5	5.7	6.4	6.6	10.8	8.0	15.3
Two or three times a week	7.6	15.0	17.7	18.6	22.8	26.5	4.6	12.2	16.0	15.1	14.5	16.2	6.3	9.7	8.3	11.3	12.4	16.5
Every day	3.2	3.6	7.8	5.9	7.7	9.9	3.6	9.8	11.3	10.5	14.9	16.7	12.1	15.2	13.7	19.2	22.6	18.1

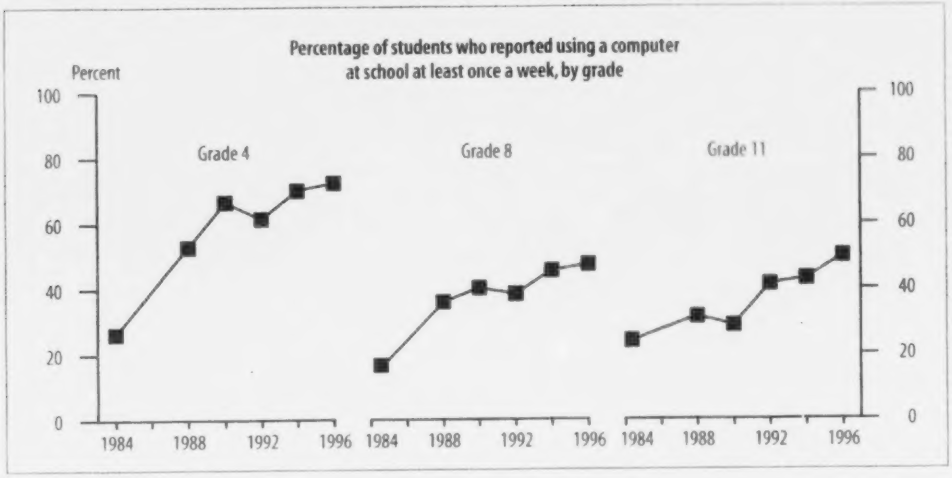
Percentage of students who used a computer at home or at school, by grade and reason for use: 1984–96

	Grade 4						Grade 8						Grade 11					
Reason for use	**1984**	**1988**	**1990**	**1992**	**1994**	**1996**	**1984**	**1988**	**1990**	**1992**	**1994**	**1996**	**1984**	**1988**	**1990**	**1992**	**1994**	**1996**
To play games	71.8	79.0	84.5	82.8	87.4	89.7	84.1	85.3	83.7	84.7	86.8	89.1	75.7	78.9	79.0	78.4	76.6	83.6
To learn things	67.9	70.4	75.8	82.9	82.0	87.5	58.2	73.7	70.5	72.8	76.4	82.6	54.6	65.3	64.5	72.3	70.7	80.2
To write stories or papers	23.4	39.6	48.6	56.9	68.3	79.2	15.0	58.4	61.3	73.1	82.3	91.2	18.8	61.2	68.9	84.1	86.9	95.7

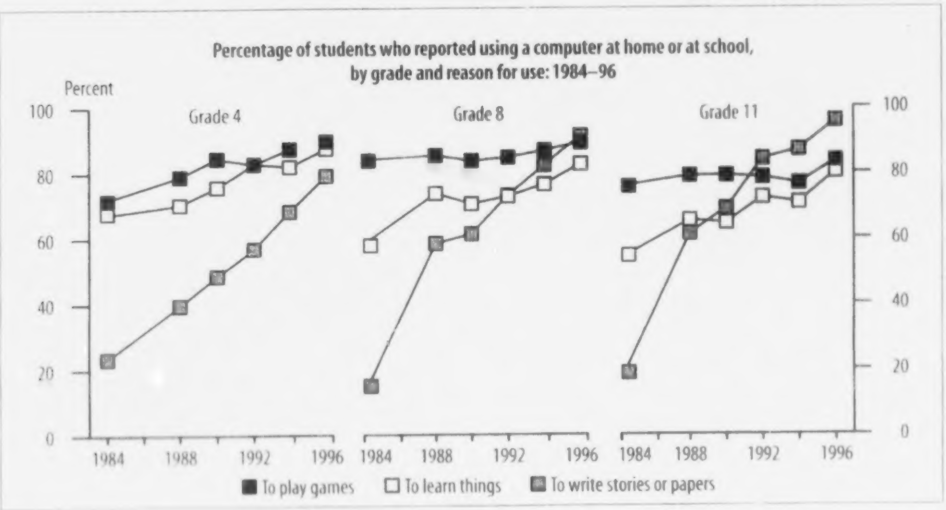
NOTE: Details may not add to 100.0 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *NAEP 1996 Trends in Academic Progress* (NCES 97-985).

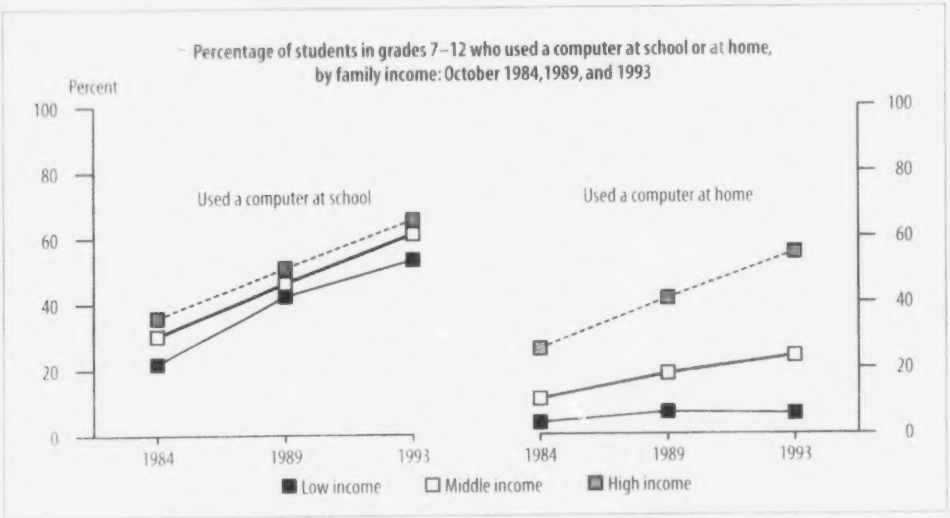
Percentage of students who reported using a computer



Percentage of students who reported using a computer at school at least once a week, by grade



Percentage of students who reported using a computer at home or at school, by grade and reason for use: 1984–96



Percentage of students in grades 7–12 who used a computer at school or at home, by family income: October 1984,1989, and 1993

SOURCE: U.S. Department of Education, National Center for Education Statistics, *NAEP 1996 Trends in Academic Progress* (NCES 97-985); and data from U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October (various years).

things also increased between 1984 and 1996 for all three grades.

- Students from high-income families were more likely to report using a computer at home or at school than students from low-income families. Between 1984 and 1993, the percentage of students who reported using a computer at school increased by similar amounts across family income levels. However, the increase in the percentage of students who used a computer at home was higher for students from families with higher incomes.

Data sources: NAEP 1996 *Trends in Academic Progress* (NCES 97-985); and the U.S. Census Bureau's Current Population Survey (CPS), October (various years).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education: 1998* (NCES 98-013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1998 (http://nces.ed.gov/pubs98/condition98/index.html)*, or
- volume 2 of the printed version (1999): *The Condition of Education: 1998 Supplemental and Standard Error Tables* (NCES 1999-025).

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Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 1997–98

Beth Aronstamm Young

This article was originally published as the introductory discussion from the report of the same name. The universe data are from the NCES Common Core of Data (CCD).

Introduction

This report provides basic descriptive information about the 100 largest school districts[1] in the United States, Department of Defense schools, and outlying areas (American Samoa, Guam, the Northern Marianas, Puerto Rico, and the Virgin Islands). Almost one in every four public school students in this nation is served by one of these 100 districts. They are distinguished from smaller districts by characteristics in addition to sheer size, such as average and median school size, pupil/teacher ratios, number of high school graduates, number of pupils receiving special education services, and minority enrollment as a proportion of total enrollment.

The tables in this report provide information about the characteristics cited above. To establish a context for the information on the 100 largest districts, national school district data are also included, as are basic data on the 500 largest school districts.

Overview of the 100 Largest Districts

In the 1997–98 school year, there were 16,411 public school districts in the United States and its outlying areas, over 91,000 schools, and 46.9 million students in public education. There were 2.8 million full-time-equivalent (FTE) teachers in the 1997–98 school year and 2.6 million high school graduates in the 1996–97 school year. The 100 largest school districts made up less than 1 percent of all public school districts but served 23 percent of all public elementary and secondary school students (table A).

The 100 largest school districts represent more than 16 percent of schools and employ 20 percent of all teachers. The 500 largest districts make up 3 percent of all school districts and serve 20.1 million students, or 43 percent of the total public elementary and secondary school student population in the United States.

All of the 100 largest school districts have at least 40,000 students, and 26 of these school districts have over 100,000 students. The largest school district in the country is the New York City Public Schools, with 1,071,853 pupils enrolled in 1,153 schools. (The New York City Public

Table A—Selected statistics for the nation, the 100 largest, and the 500 largest school districts: School year 1997–98

		100 largest districts		500 largest districts	
	National total*	Total	Percentage of national total	Total	Percentage of national total
Districts	16,411	100	0.6	500	3.0
Schools	91,340	15,152	16.6	28,984	31.7
Students	46,901,810	10,818,622	23.1	20,053,294	42.8
FTE teachers	2,792,813	568,545	20.4	1,063,860	38.1
Graduates (1996–97)	2,617,960	484,121	18.5	908,694	34.7
Pupil/teacher ratio	16.8	19.0	—	18.8	—
Average school size	513.5	714.0	—	691.9	—
Graduates as percentage of all students	5.6	4.5	—	4.5	—

— Not applicable.

*Includes outlying areas and Department of Defense schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey" and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1997–98.

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[1] School district size is defined as the number of pupils in membership as of October 1997.

Schools district is so large it has more students than the 6th through 10th largest school districts added together.) The second largest school district is the Los Angeles Unified, with 680,430 students in 645 schools.

Ninety-one of the 100 largest districts reported staff by type. In 87 of those districts, 45 percent or more of their staff were teachers, and in 10 of the districts over 60 percent were teachers. Only 14 of the districts had over 1 percent of their staff assigned to district administration.

Where Are the 100 Largest School Districts?

The District of Columbia, Hawaii, and Puerto Rico each have only one school district for the entire jurisdiction, and each is represented among the 100 largest school districts. There are 34 states that contain at least one of the 100 largest school districts. Two states, Florida and Texas, each have 14 districts among the 100 largest; California has 11. Only a few other states have more than one district represented in the 100 largest: Georgia and Maryland have 5; Louisiana, North Carolina, Tennessee, Utah, and Virginia have 4; Ohio has 3; and Arizona, Colorado, Minnesota, Nevada, and New York have 2. The following states each have one school district among the 100 largest: Alabama, Alaska, Illinois, Kansas, Kentucky, Massachusetts, Michigan, Missouri, Nebraska, New Mexico, Oregon, Pennsylvania, South Carolina, Washington, and Wisconsin (table B).

As expected, these 100 largest districts tend to be in cities and counties having large populations, with administrative offices typically located in large cities and their environs. Many of the districts are in states where the school districts are coterminous with counties. Over 70 percent of these districts are located in coastal and gulf coast states.

How Do These Districts Compare With the Average School District?

General characteristics

By definition, the 100 largest school districts are large, and when compared to the membership distribution of all school districts, they are considerably larger than most. In the 1997–98 school year, 73 percent of all regular school districts[2] had memberships of fewer than 2,500 students. All of the 100 largest school districts had memberships of at least 40,000 students. Even though only 13 percent of regular school districts had 5,000 or more students, 66 percent (or 2 out of 3) students were served by these districts (table C).

The average school district in America has 5.6 schools compared to the 100 largest school districts, which average 151.5 schools per district (table A). Two of the largest school districts, New York City Public Schools and the Puerto Rico Department of Education, have over 1,000 schools in their districts. The 100 largest school districts, on average, serve considerably more students (108,186 compared to 2,858) and employ more teachers (5,685 compared to 170) per district than the average school district (table A).

School characteristics

The 100 largest school districts have more students per school than the average school district (714 compared to 514) (table A). In fact, 15 of the 100 largest school districts had an average regular school size of over 1,000 students. In addition to larger school sizes, the 100 largest school districts also have a high mean pupil/teacher ratio, 19.0 to 1 compared to 16.8 to 1 for the average school district. Among the 100 largest districts, the Garden Grove Unified School District, California, has the highest pupil/teacher ratio at 23.6 to 1, and the Northside Independent School District, Texas, has the lowest at 14.5 to 1.

The number of high school graduates as a percentage of all students in the 100 largest school districts was lower than that of the average school district: 4.5 percent of students were graduates in the 100 largest school districts compared to 5.6 percent for the average school district (table A).

Student body composition

The 100 largest school districts are not homogeneous, and certain student characteristics, such as race/ethnicity, poverty level, and disability status, vary across the districts.

A substantial number of the 100 largest school districts have a disproportionately high percentage of racial/ethnic minorities in their student population. The 100 largest districts, with 23 percent of the nation's public school students, served 38 percent of the 17.6 million minority public school students.[3] The proportion of minority

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[2] Regular school districts are defined as agencies responsible for providing free public education for school-age children residing within their jurisdiction. This category excludes local supervisory unions that provide management services for a group of associated school districts; regional education service agencies that typically provide school districts with research, testing, or data processing services; state and federally operated school districts; and other agencies that do not fall into these groupings.

[3] The numbers of students in different racial/ethnic categories are reported at the school level and are aggregated up to the school district level. The national figure was calculated by taking the percentage of minority students among those districts that reported race/ethnicity (99.3 percent of districts) and applying this to the total number of public school students.

Table B—Selected statistics for the 100 largest school districts in the United States: School year 1997–98

Name of reporting district	City	State	County	Number of students*	Number of full-time-equivalent (FTE) teachers	Number of 1996–97 graduates	Number of schools
Total				10,818,622	568,549	484,121	15,152
New York City Public Schools	New York	NY	Kings	1,071,853	60,648	38,400	1,153
Los Angeles Unified	Los Angeles	CA	Los Angeles	680,430	30,905	25,474	645
Puerto Rico Dept. of Education	Hato Rey	PR	San Juan	616,470	38,976	56,155	1,543
City of Chicago School District 29	Chicago	IL	Cook	477,610	23,372	15,733	585
Dade County School District	Miami	FL	Dade	345,958	17,493	14,243	321
Broward County School District	Fort Lauderdale	FL	Broward	224,799	10,957	9,475	197
Philadelphia City School District	Philadelphia	PA	Philadelphia	212,865	10,999	9,055	259
Houston Independent School District	Houston	TX	Harris	210,988	11,606	6,559	299
Clark County School District	Las Vegas	NV	Clark	190,822	9,862	7,799	221
Hawaii Department of Education	Honolulu	HI	Honolulu	189,887	10,653	9,741	251
Detroit City School District	Detroit	MI	Wayne	174,730	8,666	6,403	271
Dallas Independent School District	Dallas	TX	Dallas	157,622	9,478	5,379	220
Hillsborough County School District	Tampa	FL	Hillsborough	152,781	9,109	6,196	169
Fairfax County Public Schools	Fairfax	VA	Fairfax	145,722	—	9,253	212
Palm Beach County School District	West Palm Beach	FL	Palm Beach	142,724	7,601	5,770	161
San Diego City Unified	San Diego	CA	San Diego	136,283	6,645	5,862	168
Orange County School District	Orlando	FL	Orange	133,826	7,781	5,472	160
Prince George's County Public Schools	Upper Marlboro	MD	Prince George's	128,347	7,216	6,951	182
Duval County School District	Jacksonville	FL	Duval	126,979	6,541	4,625	161
Montgomery County Public Schools	Rockville	MD	Montgomery	125,023	7,315	6,944	184
Memphis City School District	Memphis	TN	Shelby	111,227	6,225	4,207	163
Pinellas County School District	Largo	FL	Pinellas	109,309	6,060	4,747	145
Baltimore City Public School System	Baltimore	MD	Baltimore	107,416	6,048	3,843	182
Baltimore County Public Schools	Towson	MD	Baltimore	104,708	6,463	5,956	158
Jefferson (KY) County	Louisville	KY	Jefferson	104,338	5,408	5,173	165
Milwaukee School District	Milwaukee	WI	Milwaukee	101,253	5,846	3,035	206
Charlotte-Mecklenburg Schools	Charlotte	NC	Mecklenburg	95,795	6,007	4,432	130
Gwinnett County School District	Lawrenceville	GA	Gwinnett	93,509	5,609	4,142	78
De Kalb County School District	Decatur	GA	De Kalb	91,864	5,655	4,185	112
Wake County Schools	Raleigh	NC	Wake	89,772	5,432	4,158	105
Cobb County School District	Marietta	GA	Cobb	88,266	5,271	4,601	92
Jefferson (CO) County R-1	Golden	CO	Jefferson	88,006	4,178	4,547	156
Albuquerque Public Schools	Albuquerque	NM	Bernalillo	87,274	5,314	4,469	124
Long Beach Unified	Long Beach	CA	Los Angeles	85,908	3,599	3,660	86
Orleans Parish School Board	New Orleans	LA	Orleans	83,175	4,485	3,749	122
Fresno Unified	Fresno	CA	Fresno	78,166	3,713	3,034	90
Virginia Beach City Public Schools	Virginia Beach	VA	Virginia Beach City	77,521	—	4,091	83
District of Columbia Public Schools	Washington	DC	District of Columbia	77,111	—	2,853	171
Fort Worth Independent School District	Fort Worth	TX	Tarrant	76,901	4,314	2,695	132
Austin Independent School District	Austin	TX	Travis	76,606	4,616	2,760	101
Cleveland City School District	Cleveland	OH	Cuyahoga	76,504	4,621	1,958	125
Polk County School District	Bartow	FL	Polk	76,497	4,355	3,237	130
Granite School District	Salt Lake City	UT	Salt Lake	74,956	3,264	4,804	97
Anne Arundel County Public Schools	Annapolis	MD	Anne Arundel	73,363	4,065	3,777	113
Jordan School District	Sandy	UT	Salt Lake	73,181	3,074	4,617	72
Mesa Unified School District	Mesa	AZ	Maricopa	69,764	3,424	3,516	80
Brevard County School District	Melbourne	FL	Brevard	67,879	3,843	3,158	90
Denver County 1	Denver	CO	Denver	67,858	3,521	2,684	118
Nashville-Davidson County School District	Nashville	TN	Davidson	67,558	4,299	2,716	124
Mobile County School District	Mobile	AL	Mobile	65,230	3,683	3,314	89
Columbus City School District	Columbus	OH	Franklin	64,872	3,730	2,091	146
El Paso Independent School District	El Paso	TX	El Paso	63,909	4,062	3,050	82
Boston School District	Boston	MA	Suffolk	63,762	4,116	2,852	127
Fulton County School District	Atlanta	GA	Fulton	62,798	3,944	2,674	63
Tucson Unified District	Tucson	AZ	Pima	62,480	3,376	2,750	118
San Antonio Independent School District	San Antonio	TX	Bexar	61,112	3,797	2,260	108
San Francisco Unified	San Francisco	CA	San Francisco	61,007	3,556	3,325	113
Northside Independent School District	San Antonio	TX	Bexar	60,083	3,867	3,267	79
Atlanta City School District	Atlanta	GA	Fulton	60,024	3,631	2,072	98
Guilford County Schools	Greensboro	NC	Guilford	59,903	3,885	2,893	95

See footnotes on second page of this table.

Table B—Selected statistics for the 100 largest school districts in the United States: School year 1997–98—Continued

Name of reporting district	City	State	County	Number of students*	Number of full-time-equivalent (FTE) teachers	Number of 1996–97 graduates	Number of schools
Volusia County School District	Deland	FL	Volusia	59,310	3,490	2,611	82
Davis School District	Farmington	UT	Davis	59,220	2,502	4,315	80
East Baton Rouge Parish School Board	Baton Rouge	LA	East Baton Rouge	58,238	3,507	2,673	105
Greenville County School District	Greenville	SC	Greenville	56,967	3,575	2,822	91
Seminole County School District	Sanford	FL	Seminole	56,916	2,985	2,937	61
Cypress-Fairbanks ISD	Houston	TX	Harris	55,593	3,455	2,760	51
Portland School District 1J	Portland	OR	Multnomah	55,321	2,863	2,677	109
Arlington Independent School District	Arlington	TX	Tarrant	54,591	3,332	2,529	66
Jefferson Parish School Board	Harvey	LA	Jefferson	54,413	3,468	2,351	84
Santa Ana Unified	Santa Ana	CA	Orange	53,805	2,358	1,754	47
Lee County School District	Fort Myers	FL	Lee	53,790	2,972	2,533	72
Oakland Unified	Oakland	CA	Alameda	53,564	2,781	1,839	91
Washoe County School District	Reno	NV	Washoe	51,205	2,984	2,195	85
Knox County School District	Knoxville	TN	Knox	51,152	3,401	2,727	85
Sacramento City Unified	Sacramento	CA	Sacramento	51,042	2,268	2,055	76
Cumberland County Schools	Fayetteville	NC	Cumberland	51,014	2,909	2,600	75
Cincinnati City School District	Cincinnati	OH	Hamilton	50,332	3,181	1,323	82
Chesterfield County Public Schools	Chesterfield	VA	Chesterfield	50,173	—	2,890	58
Prince William County Public Schools	Manassas	VA	Prince William	49,905	—	2,781	66
Minneapolis	Minneapolis	MN	Hennepin	49,157	—	—	150
Fort Bend Independent School District	Sugar Land	TX	Fort Bend	49,093	2,808	2,391	48
Anchorage School District	Anchorage	AK	Anchorage	48,888	2,562	2,318	89
Aldine Independent School District	Houston	TX	Harris	48,585	3,223	1,808	51
Caddo Parish School Board	Shreveport	LA	Caddo	48,347	2,963	2,339	74
Seattle	Seattle	WA	King	47,883	2,461	—	115
San Juan Unified	Carmichael	CA	Sacramento	47,837	2,250	2,860	82
Ysleta Independent School District	El Paso	TX	El Paso	47,616	2,971	2,456	65
San Bernardino City Unified	San Bernardino	CA	San Bernardino	47,385	2,091	1,611	59
Buffalo City School District	Buffalo	NY	Erie	47,010	3,127	1,974	73
Wichita	Wichita	KS	Sedgwich	46,859	2,758	2,041	95
Garland Independent School District	Garland	TX	Dallas	46,632	2,733	1,975	63
North East Independent School District	San Antonio	TX	Bexar	46,550	3,052	2,616	59
St. Louis City	St. Louis	MO	St. Louis City	46,235	3,221	1,198	113
Escambia County School District	Pensacola	FL	Escambia	46,083	2,600	2,215	81
Shelby County School District	Memphis	TN	Shelby	45,899	2,455	2,353	46
Garden Grove Unified	Garden Grove	CA	Orange	45,776	1,919	2,220	64
St. Paul	St. Paul	MN	Ramsey	45,142	—	—	148
Omaha Public Schools	Omaha	NE	Douglas	45,046	2,811	2,082	80
Pasco County School District	Land O Lakes	FL	Pasco	44,770	2,551	1,731	47
Alpine School District	American Fork	UT	Utah	44,694	1,783	2,720	54

— Not available.

*Count of students receiving educational services from school district may differ somewhat from the counts in tables 3 and 5 of the complete report, which reflect the count of students from the schools aggregated up to the school district.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey," 1997–98. (Originally published as table 1 on pp. 10–11 of the complete report from which this article is excerpted.)

Table C—Number and percentage of districts and students by district membership size for regular public elementary and secondary school districts in the nation:[1] School year 1997–98

District membership size	Districts			Students			Cumulative totals	
	Number	Percentage	Cumulative percentage	Number	Percentage	Cumulative percentage	Districts	Students
Total[2]	14,810	100.0		46,568,267	100.0			
100,000 or more	26	0.2	0.2	6,283,970	13.5	13.5	26	6,283,970
25,000 to 99,999	206	1.4	1.6	8,810,664	18.9	32.4	232	15,094,634
10,000 to 24,999	574	3.9	5.5	8,577,946	18.4	50.8	806	23,672,580
7,500 to 9,999	340	2.3	7.8	2,908,473	6.2	57.1	1,146	26,581,053
5,000 to 7,499	699	4.7	12.5	4,223,778	9.1	66.1	1,845	30,804,831
2,500 to 4,999	2,079	14.0	26.5	7,272,764	15.6	81.8	3,924	38,077,595
2,000 to 2,499	847	5.7	32.2	1,898,104	4.1	85.8	4,771	39,975,699
1,500 to 1,999	1,091	7.4	39.6	1,892,371	4.1	89.9	5,862	41,868,070
1,000 to 1,499	1,586	10.7	50.3	1,963,502	4.2	94.1	7,448	43,831,572
800 to 999	815	5.5	55.8	732,534	1.6	95.7	8,263	44,564,106
600 to 799	960	6.5	62.3	669,740	1.4	97.1	9,223	45,233,846
450 to 599	944	6.4	68.7	491,068	1.1	98.2	10,167	45,724,914
300 to 449	1,100	7.4	76.1	408,772	0.9	99.1	11,267	46,133,686
150 to 299	1,427	9.6	85.7	315,290	0.7	99.7	12,694	46,448,976
1 to 149	1,738	11.7	97.5	119,291	0.3	100.0	14,432	46,568,267
Zero[3]	292	2.0	99.4	0	0.0	100.0	14,724	46,568,267
Not reported	86	0.6	100.0	—	—	100.0	14,810	46,568,267

—Not applicable.

[1] Includes outlying areas and Department of Defense schools.

[2] Not included in this table are local supervisory unions, regional education service agencies, and state and federally operated agencies.

[3] Membership may be zero in two situations: (1) where the school district does not operate schools but pays tuition for its students in a neighboring district, and (2) where the district provides services for students who are accounted for in some other district(s).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1997–98. (Originally published as table B on p. 3 of the complete report from which this article is excerpted.)

students in the 100 largest school districts is almost double the proportion of minority students in all public schools. In the 1997–98 school year, 66 percent of the students in the 100 largest school districts were minority students compared to 38 percent of students nationally (table D). In fact, 8 out of the 10 largest school districts had over 75 percent minority student membership.

Even with the relatively high minority membership in the 100 largest school districts, 46 of the 100 largest school districts report 50 percent or more of their students as white, non-Hispanic. Of these 46 districts, 14 report minority representation of less than 25 percent of their student body. In 19 of the 100 largest districts, half or more of the membership is black, non-Hispanic; 10 districts report that the majority of their students are Hispanic; and in 1 district, the majority of the students are Asian/Pacific Islander.

Students in the 100 largest school districts were also more likely to be eligible for the Free Lunch Program. Among schools that reported free lunch eligibility, 49 percent of students in the 100 largest school districts were eligible compared to 35 percent of all students (table D). Among the 88 of the 100 largest school districts that reported free lunch data, 38 districts reported over 50 percent of their students eligible for the Free Lunch Program.

Twelve percent of students in the 100 largest school districts had individualized education programs (IEPs) for students with disabilities. In the largest school district, New York City Public Schools, 13 percent, or 141,850 students, were reported to have IEPs. Most of these students were in regular schools, as only 3 percent of schools in the 100 largest school districts are special education schools.

Table D—Percentage of students eligible for free lunch and percentage of minority enrollment in the 100 and 500 largest school districts: School year 1997–98

	100 largest school districts	500 largest school districts	All school districts
Percentage of schools reporting free lunch	85.2	85.5	80.3
Membership eligible for free lunch, of those who reported free lunch	48.5	42.7	*34.6
Percentage of schools reporting minority membership	99.9	99.6	99.1
Total minority enrollment	66.4	56.2	37.5
American Indian/Alaska Native	0.5	0.7	1.1
Asian/Pacific Islander	6.5	5.9	3.9
Hispanic	28.6	24.1	15.6
Black, non-Hispanic	30.7	25.5	16.9
White, non-Hispanic	33.6	43.8	62.5

*This percentage should be interpreted with caution; eight states (Arizona, the District of Columbia, Illinois, Massachusetts, New Mexico, Pennsylvania, Tennessee, and Washington) did not report free lunch eligibility and are not included in the national total.

NOTE: Details may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey," 1997–98. (Originally published as table C on p. 5 of the complete report from which this article is excerpted.)

Revenues and expenditures[4]

In school year 1995–96, $290 billion were collected for public elementary and secondary education: 22 percent ($65 billion) of this amount of revenue went to the 100 largest school districts. Of the $65 billion revenue to the 100 largest school districts, a little less than one-third ($19 billion) was received by the 5 largest school districts (New York City Public Schools, Los Angeles Unified, Puerto Rico Department of Education, City of Chicago School District, and Dade County School District). The dollars from the federal government received by 99 of the 100 largest school districts constituted from 2 to 15 percent of all revenues to the district; the exception was Puerto Rico (29 percent).

The 100 largest school districts spent $58 billion (23 percent) of the $257 billion in current expenditures spent on the nation as a whole. The two largest school districts, New York City Public Schools and Los Angeles Unified, spent one out of five of the dollars expended by the 100 largest school districts. All of the 100 largest school districts devoted more than 50 percent of their current expenditures to instruction, with the exception of District of Columbia Public Schools (49 percent). New York City Public Schools spent the greatest proportion, 72 percent, on instruction among the 100 largest school districts.

The national average current expenditures per pupil were $5,646 for all districts, slightly higher than the $5,513 in the 100 largest school districts. Of the 100 largest school districts, 8 districts spent more than $7,000 per pupil (with Newark City spending the most, at $11,266 per pupil), and one school district, Puerto Rico Department of Education, spent less than $3,000 per pupil.

Changes in the 100 largest school districts between 1987 and 1997

While there was a lot of movement within the 100 largest school districts over time, between the 1987–88 and 1997–98 school years, the 100 largest districts remained very similar. Only 12 of the 100 largest districts in the 1997–98 school year were not in the 100 largest in the 1987–88 school year. Clark County School District in

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[4] National revenue and expenditure data were calculated from the state-level "National Public Education Financial Survey" (NPEFS) and can be found in *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1995–96* (Johnson 1998). The percentage distribution was based on school district-level data found on the Census Bureau's Annual Survey of Government Finances: School Systems (F-33 survey). Department of Defense schools are not included in these national totals.

Nevada was the only district to move into the largest 10 districts between these years (it moved from a rank of 19 in 1987–88 to 9 in 1997–98). Clark County includes the Las Vegas metropolitan area, which was the fastest growing metropolitan area in the country in the early nineties (Bureau of the Census 1997).

The number of students in the 100 largest school districts increased by 16 percent between 1987–88 and 1997–98, the number of teachers increased by 18 percent, and the number of schools by 7 percent. While the numbers of students, teachers, and schools have increased between these 2 years, the proportion of the national total that the 100 largest school districts made up did not change. For example, the number of students in the 100 largest school districts went from 23.3 percent of all districts in 1987–88 to 23.1 percent in 1997–98 (table E).

Table E—Number of students, teachers, and schools in the 100 largest school districts in the United States in school years 1987–88 and 1997–98

	1987–88		1997–98	
	100 largest districts	Percentage of national total	100 largest districts	Percentage of national total
Students	9,349,527	23.3	10,818,622	23.1
Full-time-equivalent (FTE) teachers	480,554	20.7	568,545	20.4
Schools	14,211	17.1	15,152	16.6

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey" and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1987–88 and 1997–98. (Originally published as table D on p. 6 of the complete report from which this article was excerpted.)

References

Bureau of the Census. (1997). *Statistical Abstract of the United States, 1997: The National Data Book.* U.S. Department of Commerce. Washington, DC: U.S. Government Printing Office.

Johnson, F. (1998). *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1995–96* (NCES 98–205). U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Data sources:

NCES: The following components of the Common Core of Data (CCD): "Local Education Agency Universe Survey," 1987–88 and 1997–98; "State Nonfiscal Survey of Public Elementary/Secondary Education," 1987–88 and 1997–98; "Public Elementary/Secondary School Universe Survey," 1997–98; and "National Public Education Financial Survey," 1996–97.

Bureau of the Census: Annual Survey of Government Finances: School Systems, 1996.

For technical information, see the complete report:

Young, B.A. (1999). *Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 1997–98* (NCES 1999–318).

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To obtain the complete report (NCES 1999–318), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Overview of Public Elementary and Secondary Schools and Districts: School Year 1997–98

Lee Hoffman

This article was originally published as a Statistics in Brief report. The universe data are from the Common Core of Data (CCD). Technical notes and definitions from the original report have been omitted.

Types of Public Schools

In the 1997–98 school year, the 50 states and the District of Columbia reported almost 90,000 public schools. Most of these were regular schools, which offer a comprehensive curriculum and may provide a range of other programs and services as well. Considerably smaller numbers of schools focused primarily on special education, vocational/technical or career education, or alternative programs. Students in these specialized schools are often also enrolled in a regular school and reported only in the membership of that regular school.

Public Elementary and Secondary Schools in 1997–98

	Regular	Special	Vocational	Alternative
Total schools in United States	82,660	2,068	930	3,850
Number reporting membership	82,127	1,764	360	3,380
Number not reporting membership	533	304	570	470

Only those schools that reported membership are included in the following discussion and tables.

Schools With Students in Membership

In the 1997–98 school year, 87,631 public schools provided instruction to 46.1 million students in the United States (table 1).[1] This was an increase of about 1.2 percent from the previous year's 45.6 million students and a gain of 1.8 percent from the 86,058 schools in 1996–97.[2] Most of these 1997–98 school-year institutions were regular schools (82,127). Among the total number of schools for which student membership was reported were 1,764 schools whose major function was to provide special education for students with disabilities and 360 identified as vocational, technical, or career schools. Some 3,380 schools were reported to offer other alternative programs. While this is a relatively small number, there are one-sixth again as many of these schools as there were last year.

The great majority of public school students, 98.1 percent, were enrolled in regular schools. An additional 0.5 percent were in special education schools, 0.4 percent in vocational schools, and 1.0 percent in alternative schools. These distributions were unchanged from the previous year. Mississippi, New Hampshire, and North Dakota reported only regular schools. With 8.1 percent of its pupils enrolled in nonregular schools, Delaware had the greatest proportion of students in these specialized settings.

Schools and Community Size

Table 2 shows that while one in eight schools was located in a large city, one in six students attended large-city schools. There were about the same number of schools in rural areas and the urban fringes of large cities: about one in four. However, schools in cities' urban fringes accounted for twice as many students as did rural schools.

Primary, Middle, and High Schools

Among the 87,631 public schools with students in membership during the 1997–98 school year, about 58.5 percent spanned the traditional primary grades, typically beginning with prekindergarten or kindergarten and going no higher than grade 8 (table 3). About half (50.1 percent) of the nation's public school students were enrolled in these schools. An additional 17.3 percent of the schools covered the upper elementary and middle grades and offered instruction to 19.6 percent of public school students.

High schools represented 18.9 percent of the schools reported and enrolled 27.1 percent of the total number of students. About 5.3 percent of schools followed some other grade configuration, including schools that spanned all of grades kindergarten through 12 and those that were ungraded.

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[1] Although the outlying areas and the Department of Defense Dependents Schools (overseas) are included in the tables, national totals are limited to the 50 states and the District of Columbia.

[2] Comparisons are based on the previous edition of this Statistics in Brief, which covers the 1996–97 school year: *Overview of Public Elementary and Secondary Schools and Districts: School Year 1996–97* (Hoffman 1998).

School District Grade Spans

In 1997–98, there were 15,035 public education agencies providing education services directly to students in the United States. Some 608 of these were operated directly by state or federal agencies, or had a primary role other than that of administering regular educational services. However, the majority of public education agencies (14,427) were regular school districts providing education to children within their jurisdiction (table 4).

States vary in the organization of their regular education agencies. Hawaii and the District of Columbia each consist of a single K–12 school district. Sixteen other states also reported 100 percent of their students enrolled in comprehensive K–12 school districts. On the other hand, in Montana and Vermont less than one-third of the students were served in this type of school district.

Among the 14,427 regular school districts with pupils in membership, 3,153 were responsible for only the elementary grades, beginning with grades prekindergarten, kindergarten, or 1 and ending at grade 8 or below (table 4). These districts enrolled 5.9 percent of the nation's public school students. An additional 557 agencies could be characterized as secondary school districts, with a low grade of 7 or higher and a high grade of 12. Some 2.3 percent of all students attended schools in these districts. An additional 137 districts had some other grade configuration. However, almost three out of four districts (10,580) provided instruction from the beginning of school through graduation. Fully 91.8 percent of all students were enrolled in these comprehensive school districts.

School District Size

School districts ranged greatly in size, as measured by the number of students in membership. A very few districts (25) enrolled 100,000 or more students, while a larger number (1,738) reported fewer than 150 students (table 5). While small in number, the largest districts served a considerable portion of students in America's public schools. Although only 1.6 percent of districts served 25,000 or more students, fully 31.5 percent of students received their education in these largest districts. To show the contrast from a different perspective, almost half of the school districts in the United States had fewer than 1,000 students in 1997–98. At the same time, about half of the public school students in this country attended schools in districts of 10,000 students or more.

Student Characteristics

Because participation in the Free Lunch Program depends on income, eligibility for this program is often used to estimate student needs. Nine states did not report free lunch eligibility data for at least 70 percent of their schools, so national totals could not be calculated (table 6). Within those states and schools that did provide this information, the proportion of students who were reported as eligible to receive a free lunch ranged from a low of 11.3 percent in New Hampshire to a high of 55.6 percent in Mississippi. (The District of Columbia had an eligibility rate of 69.3 percent in the previous year, but did not report these data in 1997–98.)

Nationally, about one in every eight students was reported to have an individualized education program (IEP), meaning that they participate in special education services. The percentage of students with IEPs ranged from 4.1 percent in Michigan to 17.7 percent in Rhode Island.

About two-thirds of the public school students in the United States in 1997–98 were white, non-Hispanic, and about one-sixth were black, non-Hispanic. American Indians/Alaska Natives constituted about one in four students in Alaska, while over two-thirds of the students in Hawaii were in the Asian/Pacific Islander category. More than one-third of the students were Hispanic in California, New Mexico, and Texas. Over half of the students were black, non-Hispanic, in the District of Columbia (87.0 percent) and Mississippi (50.9 percent). White, non-Hispanic students made up less than half of the student membership in six states, and represented 90 percent or more of the students in five other states. At the national level, none of the racial/ethnic groups changed by as much as 1 percentage point over the previous year.

Dropouts

Thirty-two states reported dropout statistics in agreement with the Common Core of Data definition (table 7).[1] Among these jurisdictions, Louisiana and Nevada reported that more than 10 percent of students in grades 9–12 had dropped out during the preceding school year. Iowa, North Dakota, and South Carolina reported dropout rates among these grades at less than 3 percent. Fifteen of the reporting states, or about half, had dropout rates somewhere between 4.0 and 6.0 percent. Dropouts were more likely to be male than female. In Ohio and South Carolina, at least three out of five of the grade 9–12 dropouts were male. In California, Hawaii, New Mexico, and Texas, which have relatively high proportions of minority enrollments, 70 percent or more of the dropouts were minority students, that is, other than white, non-Hispanic.

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[1] A dropout was defined as a student who was enrolled at any time during 1996–97, was not enrolled at the beginning of 1997–98, and had not graduated or transferred to another school.

Reference

Hoffman, L. (1998). *Overview of Public Elementary and Secondary Schools and Districts: School Year 1996–97* (NCES 98–204). U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Data sources: The following components of the NCES Common Core of Data (CCD): "Public Elementary/Secondary School Universe Survey," 1996–97 and 1997–98; "Local Education Agency Universe Survey," 1997–98; and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1996–97 and 1997–98.

For technical information, see the complete Statistics in Brief:

Hoffman, L. (1999). *Overview of Public Elementary and Secondary Schools and Districts: School Year 1997–98* (NCES 1999–322).

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Table 1—Number of public elementary and secondary schools with membership and percentage of students in membership, by type of school and by state: School year 1997–98

State	Schools having membership	Total students	Type of school							
			Regular		Special education		Vocational education		Alternative education	
			Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students
United States	87,631	46,127,194	82,127	98.1	1,764	0.5	360	0.4	3,380	1.0
Alabama	1,345	749,187	1,310	99.7	16	0.1	3	0.0	16	0.2
Alaska	497	132,123	451	95.0	2	0.3	4	0.5	40	4.3
Arizona	1,384	814,113	1,295	97.6	13	0.1	5	0.5	71	1.8
Arkansas	1,112	456,497	1,111	99.5	0	0.0	1	0.5	0	0.0
California	8,178	5,803,734	7,246	96.5	128	0.5	0	0.0	804	3.0
Colorado	1,497	687,167	1,428	98.8	7	0.0	3	0.1	59	1.1
Connecticut	1,058	535,164	977	96.6	22	0.6	17	1.8	42	1.0
Delaware	185	111,960	149	91.8	28	2.9	5	5.0	3	0.2
District of Columbia	170	77,111	153	96.2	10	2.4	0	0.0	7	1.5
Florida	2,877	2,294,077	2,431	97.5	108	0.9	44	0.2	294	1.5
Georgia	1,823	1,375,980	1,817	100.0	0	0.0	0	0.0	6	0.0
Hawaii	250	189,887	246	99.9	3	0.0	0	0.0	1	0.1
Idaho	636	244,403	569	98.2	15	0.2	0	0.0	52	1.6
Illinois	4,228	1,998,289	3,863	97.2	246	1.3	26	0.7	93	0.9
Indiana	1,859	987,483	1,803	99.5	19	0.2	1	0.0	36	0.3
Iowa	1,548	501,054	1,501	98.9	13	0.2	0	0.0	34	0.9
Kansas	1,453	468,687	1,439	99.6	1	0.0	0	0.0	13	0.3
Kentucky	1,352	669,322	1,292	99.6	8	0.1	1	0.0	51	0.3
Louisiana	1,476	776,813	1,383	98.5	36	0.3	5	0.1	52	1.1
Maine	697	212,526	694	100.0	3	0.0	0	0.0	0	0.0
Maryland	1,298	830,744	1,210	97.3	49	0.9	11	1.1	28	0.6
Massachusetts	1,858	949,006	1,783	96.1	1	0.0	42	3.4	32	0.5
Michigan	3,625	1,702,672	3,387	98.0	120	1.0	17	0.2	101	0.8
Minnesota	2,012	853,621	1,552	96.2	64	0.3	2	0.0	394	3.5
Mississippi	874	504,792	874	100.0	0	0.0	0	0.0	0	0.0
Missouri	2,194	910,654	2,083	99.1	59	0.4	5	0.3	47	0.2
Montana	889	162,335	884	99.9	2	0.0	0	0.0	3	0.1
Nebraska	1,353	292,681	1,295	99.6	58	0.4	0	0.0	0	0.0
Nevada	448	296,621	415	98.2	11	0.4	2	0.6	20	0.8
New Hampshire	513	201,629	513	100.0	0	0.0	0	0.0	0	0.0
New Jersey	2,313	1,250,276	2,184	97.5	81	0.7	48	1.8	0	0.0
New Mexico	744	331,673	694	98.4	15	0.5	0	0.0	35	1.1
New York	4,204	2,861,823	4,014	97.0	88	0.7	25	1.2	77	1.0
North Carolina	2,048	1,236,083	1,970	99.3	26	0.3	3	0.0	49	0.4
North Dakota	565	118,572	565	100.0	0	0.0	0	0.0	0	0.0
Ohio	3,841	1,847,035	3,748	98.0	28	0.2	43	1.6	22	0.2
Oklahoma	1,818	623,681	1,806	99.7	12	0.3	0	0.0	0	0.0
Oregon	1,252	541,346	1,180	98.1	17	0.5	0	0.0	55	1.4
Pennsylvania	3,115	1,815,151	3,078	98.3	12	1.0	14	0.6	11	0.1
Rhode Island	314	153,321	304	98.6	4	0.4	3	0.5	3	0.4
South Carolina	1,055	659,256	1,029	99.6	9	0.1	0	0.0	17	0.3
South Dakota	814	142,443	797	98.9	8	0.3	0	0.0	9	0.8
Tennessee	1,522	893,020	1,498	99.7	15	0.2	0	0.0	9	0.0
Texas	7,053	3,891,877	6,312	98.1	237	0.4	20	0.1	484	1.3
Utah	759	482,957	687	98.0	22	0.5	2	0.1	48	1.5
Vermont	355	105,984	321	98.8	33	1.2	0	0.0	1	0.0
Virginia	1,811	1,110,815	1,739	99.4	31	0.2	0	0.0	41	0.5
Washington	2,016	991,235	1,801	97.8	56	0.2	5	0.1	154	1.9
West Virginia	819	301,419	797	99.6	9	0.2	3	0.0	10	0.2
Wisconsin	2,112	881,780	2,055	99.5	14	0.1	0	0.0	43	0.4
Wyoming	412	97,115	394	98.8	5	0.3	0	0.0	13	1.0
Outlying areas										
DOD Dependents Schools	160	78,254	160	100.0	0	0.0	0	0.0	0	0.0
American Samoa	31	15,214	29	98.0	1	0.2	1	1.7	0	0.0
Guam	36	32,444	36	100.0	0	0.0	0	0.0	0	0.0
Northern Marianas	26	9,246	26	100.0	0	0.0	0	0.0	0	0.0
Puerto Rico	1,516	617,322	1,477	98.5	29	0.3	10	1.2	0	0.0
Virgin Islands	35	22,136	33	99.5	0	0.0	0	0.0	2	0.5

NOTE: Table excludes 1,905 schools (28 of these in outlying areas) for which no students were reported in membership. Type of school is a mutually exclusive category. Special education, vocational education, and alternative programs may reside in other types of schools. U.S. totals exclude outlying areas. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0. Number of students in membership is reported on the "State Nonfiscal Survey of Public Elementary/Secondary Education."

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1997–98.

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Table 2—Number and percentage of schools with membership and percentage of students in membership, by community type: School year 1997–98

Community type	Number of schools	Percentage of schools	Percentage of students
United States	87,631	100.0	100.0
Large city	11,350	13.0	17.5
Midsize city	12,785	14.6	16.2
Urban fringe, large city	21,385	24.4	29.9
Urban fringe, midsize city	7,762	8.9	9.6
Large town	1,484	1.7	1.6
Small town	11,229	12.8	10.9
Rural	21,636	24.7	14.3

NOTE: Community types classify the location of a school relative to populous areas. Table includes the 50 states and the District of Columbia. Table excludes 1,877 schools without membership. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1997–98.

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Table 3—Percentage of public elementary and secondary schools providing instruction and percentage of students in membership, by specified level of instruction and by state: School year 1997–98

State	Number of schools having membership	Percentage by instructional level							
		Primary		Middle		High		Other	
		Schools	Students	Schools	Students	Schools	Students	Schools	Students
United States	87,631	58.5	50.1	17.3	19.6	18.9	27.1	5.3	3.1
Alabama	1,345	51.4	44.5	16.6	16.5	19.8	25.7	12.2	13.4
Alaska	497	36.8	46.1	6.8	13.2	14.5	24.7	41.9	16.0
Arizona	1,384	60.4	55.3	16.3	17.6	17.1	25.6	6.2	1.5
Arkansas	1,112	51.6	47.1	16.8	19.8	29.0	28.2	2.5	4.9
California	8,178	63.3	53.1	14.8	17.9	17.6	26.6	4.3	2.4
Colorado	1,497	59.0	50.3	17.8	20.7	19.3	26.6	3.9	2.5
Connecticut	1,058	61.8	51.8	17.0	20.5	16.6	26.5	4.5	1.2
Delaware	185	46.5	40.8	22.7	27.2	18.4	29.5	12.4	2.5
District of Columbia	170	64.7	62.4	13.5	14.2	13.5	18.6	8.2	4.7
Florida	2,877	55.9	49.3	16.2	21.0	13.0	21.5	14.9	8.2
Georgia	1,823	62.3	51.2	18.3	20.0	15.4	24.8	4.1	4.1
Hawaii	250	69.6	55.5	12.0	13.7	14.0	28.3	4.4	2.4
Idaho	636	53.8	48.1	16.7	21.4	25.3	28.1	4.2	2.3
Illinois	4,228	61.3	55.4	16.9	15.2	17.8	26.9	4.1	2.5
Indiana	1,859	62.0	49.9	16.7	18.0	18.7	29.7	2.6	2.4
Iowa	1,548	54.4	45.7	19.1	20.1	24.2	32.2	2.3	2.0
Kansas	1,453	57.7	49.7	17.0	19.6	24.4	30.1	0.8	0.5
Kentucky	1,352	58.4	49.2	17.1	19.9	20.0	30.2	4.5	0.7
Louisiana	1,476	53.9	47.8	19.3	19.8	16.4	25.7	10.4	6.6
Maine	697	63.6	48.5	18.1	21.9	15.8	27.9	2.6	1.7
Maryland	1,298	65.6	51.8	17.6	20.6	14.2	26.6	2.5	1.0
Massachusetts	1,858	65.1	51.6	16.8	19.7	15.6	25.5	2.4	3.2
Michigan	3,625	58.4	49.3	17.2	20.4	18.8	27.6	5.6	2.7
Minnesota	2,012	51.6	47.5	13.3	18.8	28.6	31.6	6.5	2.0
Mississippi	874	50.0	43.9	19.2	19.2	20.5	25.3	10.3	11.7
Missouri	2,194	54.9	49.1	16.3	19.8	22.6	29.1	6.2	2.0
Montana	889	53.1	48.4	27.0	20.3	19.7	30.7	0.2	0.6
Nebraska	1,353	67.3	50.7	8.1	15.0	23.0	33.6	1.7	0.7
Nevada	448	65.0	52.4	14.3	20.8	17.4	25.1	3.3	1.6
New Hampshire	513	66.5	49.1	18.3	23.3	15.2	27.6	0.0	0.0
New Jersey	2,313	62.8	52.5	17.6	18.4	13.5	25.9	6.1	3.2
New Mexico	744	58.1	48.5	20.6	22.0	17.7	27.1	3.6	2.4
New York	4,204	58.2	49.8	16.7	18.8	18.2	27.1	6.9	4.3
North Carolina	2,048	60.0	51.1	20.3	21.5	16.3	25.8	3.4	1.7
North Dakota	565	58.4	50.8	6.7	11.9	33.6	34.8	1.2	2.5
Ohio	3,841	57.7	47.4	19.1	20.1	18.9	30.4	4.3	2.1
Oklahoma	1,818	54.2	51.2	19.3	21.2	25.4	25.5	1.2	2.2
Oregon	1,252	60.7	47.8	17.5	21.0	16.9	28.5	4.9	2.6
Pennsylvania	3,115	61.9	47.8	17.3	19.9	19.2	30.0	1.6	2.3
Rhode Island	314	68.8	50.5	16.2	21.7	13.4	27.6	1.6	0.3
South Carolina	1,055	56.0	46.7	22.9	23.9	18.1	28.0	2.9	1.4
South Dakota	814	51.0	47.5	24.2	21.3	23.3	31.0	1.5	0.2
Tennessee	1,522	61.5	52.8	16.3	17.1	18.3	27.0	3.9	3.1
Texas	7,053	50.9	48.5	20.9	22.9	19.3	25.7	8.9	2.9
Utah	759	58.9	50.2	16.5	21.6	19.6	26.1	5.0	2.1
Vermont	355	69.9	52.9	6.8	9.0	13.2	29.5	10.1	8.5
Virginia	1,811	61.9	48.8	18.2	21.6	16.5	28.4	3.5	1.2
Washington	2,016	56.6	49.5	16.9	20.2	20.4	27.3	6.2	3.0
West Virginia	819	64.5	48.5	16.1	20.3	15.9	28.4	3.5	2.8
Wisconsin	2,112	58.7	48.0	17.7	19.5	21.2	30.9	2.5	1.6
Wyoming	412	56.1	46.3	22.8	24.2	18.4	28.5	2.7	1.1
Outlying areas									
DOD Dependents Schools	160	56.9	59.1	11.3	11.4	23.8	21.4	8.1	8.1
American Samoa	31	74.2	72.7	3.2	4.6	19.4	22.5	3.2	0.2
Guam	36	69.4	52.1	19.4	21.7	11.1	26.2	0.0	0.0
Northern Marianas	26	84.6	64.3	3.8	11.4	11.5	24.4	0.0	0.0
Puerto Rico	1,516	59.6	46.1	14.3	16.8	11.3	20.3	14.8	16.7
Virgin Islands	35	65.7	53.4	20.0	17.1	11.4	28.0	2.9	1.5

NOTE: Instructional levels are primary (low grade prekindergarten to 3, high grade up to 8); middle (low grade 4 to 7, high grade 4 to 9); high (low grade 7 to 12, high grade 12 only); and other (any configuration not falling within the previous three, including ungraded schools). Table excludes 1,905 schools (28 in outlying areas) for which no students were reported in membership. U.S. totals exclude outlying areas. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1997–98.

Table 4—Number of regular public elementary and secondary school districts providing instruction and percentage of students in membership, by grade span and by state: School year 1997–98

		Grade span							
		PK, K, 1 to 8 or below		PK, K, 1 to 9–12		7, 8, 9 to 7–12		Other	
State	Total districts	Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students
United States	14,427	3,153	5.9	10,580	91.8	557	2.3	137	0.1
Alabama	127	0	0.0	127	100.0	0	0.0	0	0.0
Alaska	53	0	0.0	53	100.0	0	0.0	0	0.0
Arizona	307	146	28.8	101	61.3	38	9.4	22	0.5
Arkansas	311	0	0.0	311	100.0	0	0.0	0	0.0
California	994	584	21.2	312	69.5	96	9.1	2	0.2
Colorado	176	2	0.0	174	100.0	0	0.0	0	0.0
Connecticut	166	46	4.9	112	93.6	8	1.5	0	0.0
Delaware	19	0	0.0	15	94.2	4	5.8	0	0.0
District of Columbia	1	0	0.0	1	100.0	0	0.0	0	0.0
Florida	67	0	0.0	67	100.0	0	0.0	0	0.0
Georgia	180	7	0.2	173	99.8	0	0.0	0	0.0
Hawaii	1	0	0.0	1	100.0	0	0.0	0	0.0
Idaho	112	5	0.1	106	99.9	0	0.0	1	0.0
Illinois	927	387	25.4	408	63.9	123	10.6	9	0.1
Indiana	292	1	0.0	291	100.0	0	0.0	0	0.0
Iowa	377	24	0.9	353	99.1	0	0.0	0	0.0
Kansas	304	2	0.1	302	99.9	0	0.0	0	0.0
Kentucky	176	6	0.3	170	99.7	0	0.0	0	0.0
Louisiana	66	0	0.0	66	100.0	0	0.0	0	0.0
Maine	227	108	12.2	113	86.7	5	1.1	1	0.0
Maryland	24	0	0.0	24	100.0	0	0.0	0	0.0
Massachusetts	245	67	5.1	176	94.8	2	0.2	0	0.0
Michigan	659	88	0.8	535	98.8	17	0.1	19	0.3
Minnesota	373	30	0.5	334	99.2	8	0.2	1	0.0
Mississippi	152	0	0.0	149	99.8	3	0.2	0	0.0
Missouri	524	74	1.3	450	98.7	0	0.0	0	0.0
Montana	457	282	61.0	52	11.8	113	27.1	10	0.1
Nebraska	624	312	3.6	266	94.8	21	1.5	25	0.0
Nevada	17	1	0.0	16	100.0	0	0.0	0	0.0
New Hampshire	165	89	19.5	65	74.6	9	4.1	2	1.8
New Jersey	581	290	18.6	214	73.3	51	6.6	26	1.5
New Mexico	89	0	0.0	89	100.0	0	0.0	0	0.0
New York	705	42	1.0	646	98.4	9	0.6	8	0.0
North Carolina	117	0	0.0	117	100.0	0	0.0	0	0.0
North Dakota	231	47	2.5	174	96.8	7	0.6	3	0.1
Ohio	611	1	0.0	610	100.0	0	0.0	0	0.0
Oklahoma	547	115	3.5	430	96.5	0	0.0	2	0.1
Oregon	198	18	0.1	177	99.9	1	0.0	2	0.0
Pennsylvania	500	2	0.0	498	100.0	0	0.0	0	0.0
Rhode Island	36	4	1.5	31	97.5	0	0.0	1	1.0
South Carolina	90	2	0.1	86	99.6	1	0.1	1	0.2
South Dakota	173	7	1.0	166	99.0	0	0.0	0	0.0
Tennessee	137	15	2.7	122	97.3	0	0.0	0	0.0
Texas	1,042	68	0.3	974	99.7	0	0.0	0	0.0
Utah	40	0	0.0	40	100.0	0	0.0	0	0.0
Vermont	250	184	43.4	35	32.3	30	22.5	1	1.8
Virginia	132	1	0.0	131	100.0	0	0.0	0	0.0
Washington	296	47	1.0	248	99.0	0	0.0	1	0.0
West Virginia	55	0	0.0	55	100.0	0	0.0	0	0.0
Wisconsin	426	47	2.6	368	96.2	11	1.2	0	0.0
Wyoming	48	2	0.6	46	99.4	0	0.0	0	0.0
Outlying areas									
DOD Dependents Schools	12	0	0.0	12	100.0	0	0.0	0	0.0
American Samoa	1	0	0.0	1	100.0	0	0.0	0	0.0
Guam	1	0	0.0	1	100.0	0	0.0	0	0.0
Northern Marianas	1	0	0.0	1	100.0	0	0.0	0	0.0
Puerto Rico	1	0	0.0	1	100.0	0	0.0	0	0.0
Virgin Islands	1	0	0.0	1	100.0	0	0.0	0	0.0

NOTE: Grade span is determined by the highest and lowest grades for which student membership is reported among all schools associated with the district. "Other" includes all grade configurations not represented in the other categories and includes ungraded districts. Table excludes 378 regular school districts for which no students were reported in membership. U.S. totals exclude outlying areas. Table includes 12 Defense Department school districts for military personnel overseas, which are technically federally operated agencies. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey" and "Public Elementary/Secondary School Universe Survey," 1997–98.

Table 5—Distribution of regular public elementary and secondary school districts and students, by district membership size: School year 1997–98

District membership size	Number of districts	Percentage of districts	Percentage of students
United States	14,427	100.0	100.0
100,000 or more	25	0.2	12.4
25,000 to 99,999	205	1.4	19.1
10,000 to 24,999	572	4.0	18.6
7,500 to 9,999	339	2.3	6.3
5,000 to 7,499	699	4.8	9.2
2,500 to 4,999	2,079	14.4	15.9
2,000 to 2,499	847	5.9	4.1
1,500 to 1,999	1,091	7.6	4.1
1,000 to 1,499	1,586	11.0	4.3
800 to 999	815	5.6	1.6
600 to 799	960	6.7	1.5
450 to 599	944	6.5	1.1
300 to 449	1,100	7.6	0.9
150 to 299	1,427	9.9	0.7
1 to 149	1,738	12.0	0.3

NOTE: Table includes the 50 states and the District of Columbia, and excludes 378 regular school districts for which no students were reported in membership. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1997–98.

Table 6—Selected characteristics of public elementary and secondary school membership as a percentage of school membership by state: School year 1997–98

State	Eligible for free lunch	With individualized education program	American Indian/ Alaska Native	Asian/ Pacific Islander	Hispanic	Black, Non-Hispanic	White, Non-Hispanic
United States	—	11.9	1.2	3.9	14.5	17.1	63.4
Alabama	38.2	13.2	0.8	0.7	0.8	36.0	61.7
Alaska	24.5	13.7	24.8	4.8	3.0	4.7	62.8
Arizona	—	10.1	7.0	1.8	30.8	4.4	56.0
Arkansas	37.1	10.5	0.4	0.8	2.2	23.7	72.9
California	47.0	10.7	0.9	11.1	40.5	8.8	38.8
Colorado	21.9	9.9	1.1	2.7	19.3	5.6	71.3
Connecticut	19.7	13.6	0.2	2.5	12.1	13.7	71.5
Delaware	30.5	12.2	0.2	1.9	4.6	30.1	63.2
District of Columbia	—	10.0	0.0	1.5	7.5	87.0	4.0
Florida	36.4	14.2	0.2	1.8	16.4	25.4	56.2
Georgia	43.1	10.0	0.1	1.9	2.9	38.0	57.1
Hawaii	27.3	9.2	0.4	70.7	4.7	2.6	21.6
Idaho	23.4	10.7	1.3	1.2	9.2	0.7	87.6
Illinois	—	11.8	0.2	3.1	13.2	21.3	62.3
Indiana	22.4	14.0	0.2	0.8	2.6	11.3	85.1
Iowa	20.6	13.5	0.5	1.6	2.6	3.5	91.8
Kansas	32.3	14.9	1.1	2.0	7.0	8.6	81.3
Kentucky	39.6	12.9	0.1	0.5	0.5	10.3	88.5
Louisiana	50.8	12.1	0.6	1.3	1.2	46.7	50.2
Maine	24.2	14.4	0.6	0.9	0.5	0.9	97.1
Maryland	25.5	13.0	0.3	4.0	3.7	36.1	55.9
Massachusetts	—	17.2	0.2	4.1	9.7	8.5	77.5
Michigan	25.4	4.1	1.0	1.6	2.8	19.1	75.4
Minnesota	19.2	12.0	2.0	4.4	2.5	5.6	85.5
Mississippi	55.6	12.6	0.5	0.6	0.4	50.9	47.6
Missouri	27.9	15.2	0.3	1.1	1.3	16.7	80.6
Montana	22.8	11.6	10.0	0.8	1.5	0.5	87.1
Nebraska	21.8	14.5	1.5	1.4	5.3	6.2	85.7
Nevada	32.9	10.7	1.9	4.8	20.5	9.7	63.2
New Hampshire	11.3	13.6	0.2	1.1	1.4	1.0	96.3
New Jersey	24.5	6.2	0.2	5.7	14.0	18.3	61.9
New Mexico	—	17.2	10.6	1.0	48.0	2.4	38.0
New York	36.6	14.2	0.5	5.4	17.8	20.4	55.9
North Carolina	31.2	12.9	1.5	1.6	2.7	31.0	63.2
North Dakota	21.5	10.9	8.3	0.8	1.1	0.9	88.9
Ohio	22.2	11.9	0.1	1.0	1.5	15.5	81.9
Oklahoma	36.4	12.4	15.5	1.3	4.5	10.6	68.1
Oregon	24.8	10.7	2.1	3.5	8.1	2.6	83.7
Pennsylvania	—	11.0	0.1	1.8	3.9	14.5	79.7
Rhode Island	28.0	17.7	0.5	3.4	11.5	7.5	77.2
South Carolina	42.3	12.9	0.2	0.8	1.0	42.2	55.8
South Dakota	32.3	11.4	14.4	0.8	0.9	1.0	82.9
Tennessee	—	13.6	0.1	1.0	0.9	23.2	74.8
Texas	38.9	12.1	0.3	2.4	37.9	14.4	45.0
Utah	19.0	11.3	1.5	2.5	6.6	0.8	88.6
Vermont	—	10.6	0.5	1.1	0.4	0.9	97.1
Virginia	25.6	13.3	0.2	3.6	3.6	27.0	65.5
Washington	—	10.7	2.8	6.9	8.6	4.9	76.8
West Virginia	40.3	16.1	0.1	0.3	0.5	4.1	95.1
Wisconsin	20.0	12.8	1.4	3.0	3.6	9.8	82.2
Wyoming	19.9	12.3	2.9	0.8	6.6	1.1	88.6
Outlying areas							
DOD Dependents Schools	—	8.5	1.0	10.1	8.5	21.9	58.5
American Samoa	94.9	3.1	0.0	100.0	0.0	0.0	0.0
Guam	27.6	5.9	0.1	95.9	0.3	0.6	3.1
Northern Marianas	38.8	3.6	0.0	99.1	0.0	0.0	0.9
Puerto Rico	80.9	8.2	0.0	0.0	100.0	0.0	0.0
Virgin Islands	66.4	7.7	0.0	0.3	14.1	84.7	0.9

NOTE: Data are shown as — if reported for less than 70 percent of schools or agencies. Percentages are based on schools and agencies reporting. National percentages are shown as — if data were missing for one or more states. U.S. totals exclude outlying areas. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey," 1997–98.

Table 7—Number and percentage of students dropping out of grades 9 through 12 and percentage of dropouts who are male or minority, by reporting states: School year 1996–97

State	Grade 9–12 number of dropouts	Grade 9–12 percentage dropouts	Percentage dropouts who were male	Percentage dropouts who were minority
Alabama	10,910	5.3	58.7	40.7
Alaska	1,728	4.9	57.2	47.6
Arkansas	6,748	5.0	58.8	29.4
California	51,403	3.3	55.5	74.3
Connecticut	5,390	3.9	57.5	48.6
Delaware	1,464	4.5	58.2	45.5
Georgia	29,294	8.2	59.9	48.6
Hawaii	2,525	4.8	53.1	77.0
Indiana	9,246	3.2	58.9	20.6
Iowa	4,621	2.9	57.4	15.1
Kansas	6,323	4.6	56.6	33.7
Louisiana	25,087	11.6	57.9	55.7
Maine	1,845	3.2	58.1	3.1
Massachusetts	8,423	3.4	57.5	37.6
Minnesota	13,449	5.5	57.4	32.9
Mississippi	8,309	6.0	59.8	58.0
Missouri	15,020	5.8	57.3	29.8
Montana	2,140	5.1	56.9	18.6
Nebraska	3,773	4.3	59.6	28.9
Nevada	7,600	10.2	54.5	43.8
New Mexico	7,230	7.5	55.8	72.4
New York	27,280	3.4	56.2	64.1
North Dakota	1,004	2.7	57.9	31.1
Ohio	28,507	5.2	60.1	32.2
Oregon	10,573	6.9	56.2	23.7
Pennsylvania	20,463	3.9	57.9	42.6
Rhode Island	1,933	4.7	59.7	31.5
South Carolina	5,049	2.7	61.9	50.6
Texas	36,521	3.6	54.8	70.5
Utah	6,807	4.5	52.9	20.8
West Virginia	3,851	4.1	57.5	5.0
Wyoming	1,963	6.2	57.2	17.8

NOTE: Membership in ungraded districts reporting dropouts is prorated across grades. Table includes all districts reporting zero or more dropouts in any of grades 9 through 12.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1997–98; "State Nonfiscal Survey of Public Elementary/Secondary Education" and "Public Elementary/Secondary School Universe Survey," 1996–97.

Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1996–1997

Frank Johnson

This article was originally published as a Statistics in Brief report. The universe data are from the "National Public Education Financial Survey" (NPEFS), part of the NCES Common Core of Data (CCD). Technical notes and definitions from the original report have been omitted.

About $305 billion of revenues were raised by local, state, and federal governments to fund public education for prekindergarten through the 12th grade in school year (SY) 1996–97. Current expenditures (those excluding construction, equipment, and debt financing) came to $270 billion. Three out of every five dollars were spent on teachers, textbooks, and other instructional services and supplies. An average of $5,923 was spent on each student—an increase of 4.1 percent from $5,689 in school year 1995–96.

These and other financial data on public elementary and secondary education are collected and reported each year by the National Center for Education Statistics (NCES), U.S. Department of Education. The data are part of the "National Public Education Financial Survey" (NPEFS), one of the components of the Common Core of Data (CCD) collection of surveys.

Revenues for Public Elementary and Secondary Education

About $305 billion were collected for public elementary and secondary education in SY 1996–97 in the 50 states and the District of Columbia (table 1). Revenues ranged from a high of around $34 billion in California, which serves about 1 out of every 8 students in the nation, to a low of about $643 million in North Dakota, which serves about 1 out of every 380 students. Nationally, revenues increased an average of 6.0 percent over last year's revenues of $288 billion (in unadjusted dollars).

By far, the greatest part of education revenues came from nonfederal sources (state, intermediate, and local governments),* which together provided about $285 billion, or 93.4 percent of all revenues. The federal government contribution to education revenues made up the remaining $20 billion. The relative contributions from these levels of government can be expressed as portions of the typical education dollar (figure 1). Local and intermediate sources made up 45 cents of every dollar in revenue; state revenues 48 cents; and the remaining 7 cents came from federal sources.

Revenues from local sources made up between 2.4 percent and 89.5 percent of all revenues (table 2). As might be expected, revenues from state sources also showed a wide distribution in their share of total revenues. The state revenue share of total revenues was less than 30 percent in three states: New Hampshire (7.4 percent), Illinois (27.0 percent), and Vermont (28.6 percent); and more than 70 percent in Hawaii (89.5 percent) and New Mexico (73.1 percent). Hawaii and the District of Columbia have only one school district each. Federal revenues ranged from 3.5 percent in Connecticut, New Hampshire, and New Jersey to 14.0 percent in Mississippi.

Current Expenditures for Public Elementary and Secondary Education

Current expenditures for public education in SY 1996–97 totaled about $270 billion (table 3). This represents a $15 billion (5.9 percent) increase over expenditures in the previous school year ($255 billion in unadjusted dollars). About $167 billion in current expenditures went for instruction. Another $91 billion were expended for a cluster of services that support instruction. Nearly $12 billion were spent on noninstructional services.

Instructional expenditures accounted for about 62 cents out of the education dollar (figure 2). These expenditures include teachers' salaries and benefits, supplies (such as textbooks), and purchased services. Another 34 cents of the education dollar went for support services, which include operation and maintenance of buildings, school administration, transportation, and other student and school support activities (e.g., student counseling, libraries, and health services). About 4 cents of every dollar went to noninstructional activities, which include school meals and enterprise activities such as bookstores.

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*Definitions for each term, including state and local revenues, are provided in the complete report.

Most states were closely clustered around the national average in terms of the share of current expenditures that were spent on instruction; all but five states and the District of Columbia spent more than 59 percent of their current expenditures on instruction (table 4). Three states spent more than two-thirds of their current expenditures on instruction. These were Maine (68.2 percent), New York (67.6 percent), and Rhode Island (67.0 percent).

Current Expenditures per Student

In SY 1996–97, the 50 states and the District of Columbia spent an average of $5,923 for every pupil in membership (table 5). This represents a 4.1 percent increase from the previous year ($5,689). Four states expended more than $8,000 per pupil. These were New Jersey ($9,588), Connecticut ($8,580), New York ($8,525), and Alaska ($8,231). The District of Columbia, which comprises a single urban district, spent $8,048 per pupil. Only one state had expenditures of less than $4,000 for each pupil in membership: Utah ($3,783). The median per pupil expenditure was $5,734, indicating that half of the states educated students at a cost of less than $5,734 per student.

On the average, for every student about $3,665 was spent for instructional services, $1,996 for support services, and $262 for noninstructional purposes.

Data source: The Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 1996–97.

For technical information, see the complete Statistics in Brief:

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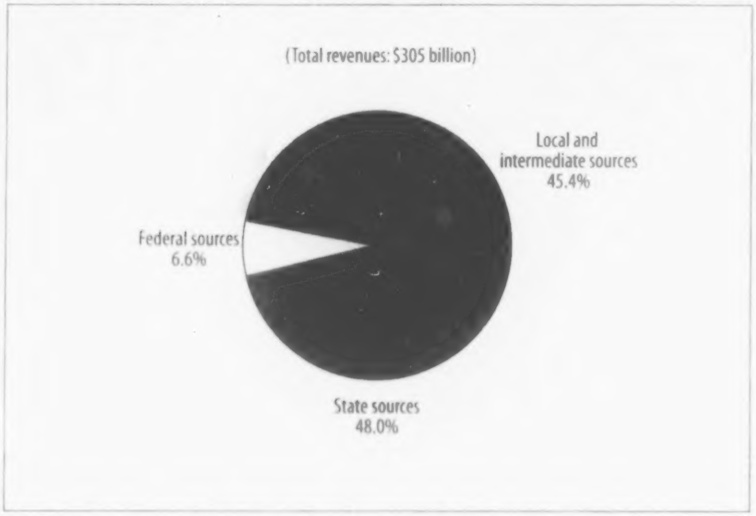
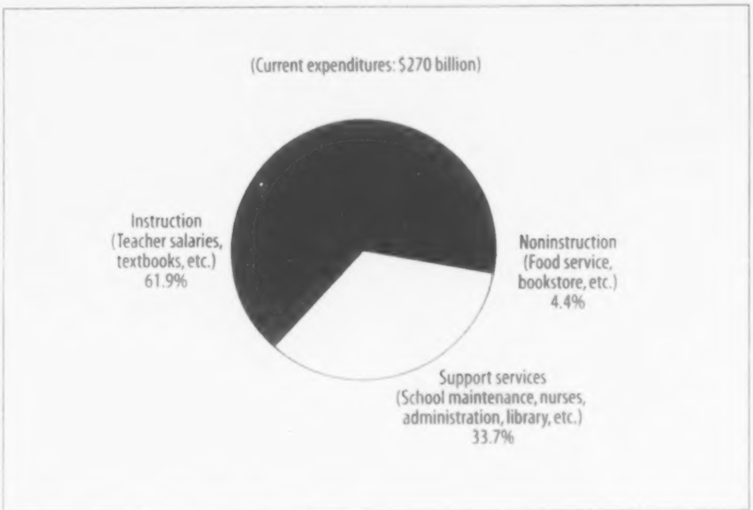
To obtain the complete report (NCES 1999–301), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

Figure 1—The public education dollar: Revenues by source: School year 1996–97



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 1996–97.

Figure 2—The public education dollar: Current expenditures by functions: School year 1996–97



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 1996–97.

Table 1—Revenues for public elementary and secondary schools, by source and state: School year 1996–97 (in thousands of dollars)

State	Revenues, by source				
	Total	Local	Intermediate	State	Federal
United States	*$305,051,963	*$137,394,127	$1,142,651	$146,433,951	$20,081,235
Alabama	3,955,039	1,070,751	7,449	2,498,675	378,164
Alaska	1,219,017	301,756	0	772,919	144,341
Arizona	4,400,591	1,840,643	170,221	1,981,318	408,410
Arkansas	2,371,834	757,795	3,073	1,424,952	186,015
California	34,477,895	10,980,086	0	20,679,410	2,818,398
Colorado	4,045,015	2,046,171	1,454	1,785,790	211,601
Connecticut	*4,899,850	*2,912,117	0	1,817,333	170,400
Delaware	878,326	242,436	0	569,041	66,850
District of Columbia	711,504	636,564	0	0	74,941
Florida	13,861,434	6,071,255	0	6,768,050	1,022,129
Georgia	8,129,250	3,206,675	0	4,366,411	556,165
Hawaii	1,215,924	29,588	0	1,088,411	97,925
Idaho	1,251,263	372,686	0	794,956	83,621
Illinois	13,161,954	8,774,537	0	3,559,351	828,066
Indiana	7,638,406	3,412,827	52,266	3,854,836	318,477
Iowa	3,167,763	1,351,584	8,378	1,646,510	161,291
Kansas	3,040,600	1,035,188	127,115	1,708,043	170,254
Kentucky	3,794,129	1,055,930	0	2,386,935	351,264
Louisiana	*4,154,494	*1,581,121	0	2,087,902	485,471
Maine	1,499,504	710,668	0	707,638	81,197
Maryland	6,042,059	3,386,302	0	2,343,421	312,336
Massachusetts	7,229,486	3,998,665	0	2,883,350	347,471
Michigan	13,437,615	3,734,174	14,461	8,805,410	883,570
Minnesota	6,109,916	2,265,400	220,572	3,359,840	264,105
Mississippi	2,259,053	689,288	1,335	1,253,205	315,226
Missouri	5,571,655	2,968,177	26,395	2,247,279	329,806
Montana	991,653	337,805	91,014	469,750	93,084
Nebraska	1,954,789	1,196,961	13,629	627,428	116,772
Nevada	1,705,232	1,090,914	0	543,409	70,908
New Hampshire	1,282,509	1,143,633	0	94,542	44,334
New Jersey	12,376,750	7,149,307	16	4,793,226	434,201
New Mexico	1,829,725	261,207	0	1,336,628	231,891
New York	26,564,743	14,546,815	103,325	10,467,969	1,446,633
North Carolina	6,515,608	1,786,312	0	4,258,020	471,276
North Dakota	642,984	291,385	8,072	266,289	77,238
Ohio	12,587,117	6,679,202	14,070	5,126,180	767,665
Oklahoma	3,251,302	899,017	58,272	2,025,586	268,428
Oregon	3,472,609	1,381,650	48,748	1,826,146	216,065
Pennsylvania	14,441,126	7,972,204	27,791	5,652,779	788,351
Rhode Island	1,193,754	645,048	0	484,813	63,893
South Carolina	3,889,383	1,521,335	0	2,040,324	327,724
South Dakota	747,324	400,520	8,662	265,378	72,764
Tennessee	4,411,971	1,894,063	0	2,141,593	376,315
Texas	22,372,808	11,541,933	85,507	9,026,103	1,719,266
Utah	2,198,285	678,724	0	1,381,527	138,034
Vermont	812,166	541,899	0	232,561	37,706
Virginia	*7,204,510	*4,507,631	0	2,338,962	357,917
Washington	6,642,158	1,797,283	18	4,455,423	389,435
West Virginia	2,082,049	596,192	886	1,312,732	172,240
Wisconsin	6,701,115	2,855,644	0	3,557,024	288,447
Wyoming	656,713	245,065	49,924	318,570	43,153
Outlying areas					
American Samoa	47,430	73	95	10,389	36,873
Guam	168,835	152,607	0	0	16,228
Northern Marianas	56,010	616	0	42,899	12,494
Puerto Rico	1,832,790	568	0	1,312,650	519,572
Virgin Islands	141,786	117,532	0	0	24,253

*Value contains imputation for missing data. Imputed value is less than 2 percent of total revenues in any one state.

NOTE: Details may not add to total due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 1996–97.

Table 2—Percentage distribution of revenues for public elementary and secondary schools, by source and state: School year 1996–97

State	Within-state percentage distribution			
	Local	Intermediate	State	Federal
United States*	45.0	0.4	48.0	6.6
Alabama	27.1	0.2	63.2	9.6
Alaska	24.8	0.0	63.4	11.8
Arizona	41.8	3.9	45.0	9.3
Arkansas	31.9	0.1	60.1	7.8
California	31.8	0.0	60.0	8.2
Colorado	50.6	0.0	44.1	5.2
Connecticut*	59.4	0.0	37.1	3.5
Delaware	27.6	0.0	64.8	7.6
District of Columbia	89.5	0.0	0.0	10.5
Florida	43.8	0.0	48.8	7.4
Georgia	39.4	0.0	53.7	6.8
Hawaii	2.4	0.0	89.5	8.1
Idaho	29.8	0.0	63.5	6.7
Illinois	66.7	0.0	27.0	6.3
Indiana	44.7	0.7	50.5	4.2
Iowa	42.7	0.3	52.0	5.1
Kansas	34.0	4.2	56.2	5.6
Kentucky	27.8	0.0	62.9	9.3
Louisiana*	38.1	0.0	50.3	11.7
Maine	47.4	0.0	47.2	5.4
Maryland	56.0	0.0	38.8	5.2
Massachusetts	55.3	0.0	39.9	4.8
Michigan	27.8	0.1	65.5	6.6
Minnesota	37.1	3.6	55.0	4.3
Mississippi	30.5	0.1	55.5	14.0
Missouri	53.3	0.5	40.3	5.9
Montana	34.1	9.2	47.4	9.4
Nebraska	61.2	0.7	32.1	6.0
Nevada	64.0	0.0	31.9	4.2
New Hampshire	89.2	0.0	7.4	3.5
New Jersey	57.8	0.0	38.7	3.5
New Mexico	14.3	0.0	73.1	12.7
New York	54.8	0.4	39.4	5.4
North Carolina	27.4	0.0	65.4	7.2
North Dakota	45.3	1.3	41.4	12.0
Ohio	53.1	0.1	40.7	6.1
Oklahoma	27.7	1.8	62.3	8.3
Oregon	39.8	1.4	52.6	6.2
Pennsylvania	55.2	0.2	39.1	5.5
Rhode Island	54.0	0.0	40.6	5.4
South Carolina	39.1	0.0	52.5	8.4
South Dakota	53.6	1.2	35.5	9.7
Tennessee	42.9	0.0	48.5	8.5
Texas	51.6	0.4	40.3	7.7
Utah	30.9	0.0	62.8	6.3
Vermont	66.7	0.0	28.6	4.6
Virginia*	62.6	0.0	32.5	5.0
Washington	27.1	0.0	67.1	5.9
West Virginia	28.6	0.0	63.0	8.3
Wisconsin	42.6	0.0	53.1	4.3
Wyoming	37.3	7.6	48.5	6.6
Outlying areas				
American Samoa	0.2	0.2	21.9	77.7
Guam	90.4	0.0	0.0	9.6
Northern Marianas	1.1	0.0	76.6	22.3
Puerto Rico	0.0	0.0	71.6	28.3
Virgin Islands	82.9	0.0	0.0	17.1

*Value contains imputation for missing data. Imputed value is less than 2 percent of total revenues in any one state.

NOTE: Details may not add to total due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 1996–97.

Table 3—Current expenditures for public elementary and secondary schools, by function and state: School year 1996–97
(In thousands of dollars)

State	Current expenditures, by function			
	Total	Instruction	Support services	Noninstruction
United States	[1]$270,151,583	[2]$167,147,978	[2]$91,041,936	[1]$11,961,669
Alabama	3,436,406	2,105,541	1,079,076	251,788
Alaska	1,069,379	[2]606,333	[2]427,264	35,782
Arizona	3,527,473	[2]2,025,072	[2]1,281,780	220,621
Arkansas	2,074,113	1,293,081	656,551	124,481
California	29,909,168	18,121,365	10,529,510	1,258,293
Colorado	3,577,211	2,210,900	1,221,481	144,829
Connecticut	[1]4,522,716	2,881,058	1,418,875	[1]222,783
Delaware	788,715	487,517	261,787	39,411
District of Columbia	632,952	[2]336,860	[2]272,598	23,494
Florida	12,018,676	7,033,629	4,381,509	603,538
Georgia	7,230,405	4,514,587	2,287,757	428,060
Hawaii	1,057,069	665,808	321,074	70,187
Idaho	1,090,597	683,594	356,978	50,025
Illinois	11,720,249	7,049,329	4,273,482	397,438
Indiana	6,055,055	3,786,133	2,002,153	266,769
Iowa	2,885,943	1,766,300	978,025	141,618
Kansas	2,568,525	1,477,532	962,406	128,587
Kentucky	3,382,062	2,053,842	1,155,004	173,215
Louisiana	[1]3,747,507	2,231,393	1,191,011	[1]325,102
Maine	1,351,500	922,055	401,351	28,094
Maryland	5,529,309	3,363,092	1,897,410	268,807
Massachusetts	6,846,610	4,509,876	2,113,367	223,367
Michigan	11,686,124	6,916,820	4,424,697	344,607
Minnesota	5,087,353	3,265,753	1,611,327	210,273
Mississippi	2,035,675	1,249,098	634,860	151,717
Missouri	4,775,931	2,931,449	1,634,778	209,704
Montana	902,252	562,184	302,011	38,057
Nebraska	1,707,455	[2]1,074,270	503,687	[2]129,498
Nevada	1,434,395	859,392	526,838	48,165
New Hampshire	1,173,958	[2]760,415	[2]371,963	[2]41,581
New Jersey	11,771,941	7,229,567	4,172,008	370,366
New Mexico	1,557,376	894,288	585,614	77,473
New York	24,237,291	16,375,194	7,186,590	675,506
North Carolina	5,964,939	3,704,917	1,869,514	390,508
North Dakota	577,498	353,165	175,106	49,228
Ohio	10,948,074	6,518,251	4,021,119	408,704
Oklahoma	2,990,044	1,786,857	1,018,612	184,576
Oregon	3,184,100	1,927,857	1,141,621	114,622
Pennsylvania	12,820,704	8,220,369	4,132,980	467,354
Rhode Island	1,151,888	771,635	347,402	32,850
South Carolina	3,296,661	1,965,815	1,121,812	209,034
South Dakota	627,109	384,756	208,437	33,915
Tennessee	4,145,380	2,687,981	1,242,078	215,321
Texas	20,167,238	12,426,613	6,655,923	1,084,702
Utah	1,822,725	1,205,721	511,223	105,781
Vermont	718,092	467,336	229,343	21,413
Virginia	[1]6,343,766	3,852,822	2,154,071	[1]336,873
Washington	[2]5,587,808	[2]3,351,236	1,970,285	266,286
West Virginia	1,847,560	1,144,463	591,395	111,702
Wisconsin	5,975,122	3,771,582	2,019,452	184,088
Wyoming	591,488	363,275	206,738	21,475
Outlying areas				
American Samoa	33,780	13,590	12,268	7,922
Guam	156,561	85,529	61,896	9,136
Northern Marianas	53,140	42,777	7,555	2,809
Puerto Rico	1,796,077	1,259,605	351,038	185,434
Virgin Islands	122,188	69,435	45,967	6,786

[1] Value contains imputation for missing data. Imputed value is less than 2 percent of total current expenditures in any one state.

[2] Value affected by redistribution of reported values for missing data items.

NOTE: Details may not add to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 1996–97.

Table 4—Percentage distribution of current expenditures for public elementary and secondary schools, by function and state: School year 1996–97

State	Within-state percentage distribution		
	Instruction	Support services	Noninstruction
United States*	61.9	33.7	4.4
Alabama	61.3	31.4	7.3
Alaska*	56.7	40.0	3.3
Arizona*	57.4	36.3	6.3
Arkansas	62.3	31.7	6.0
California	60.6	35.2	4.2
Colorado	61.8	34.1	4.0
Connecticut*	63.7	31.4	4.9
Delaware	61.8	33.2	5.0
District of Columbia*	53.2	43.1	3.7
Florida	58.5	36.5	5.0
Georgia	62.4	31.6	5.9
Hawaii	63.0	30.4	6.6
Idaho	62.7	32.7	4.6
Illinois	60.1	36.5	3.4
Indiana	62.5	33.1	4.4
Iowa	61.2	33.9	4.9
Kansas	57.5	37.5	5.0
Kentucky	60.7	34.2	5.1
Louisiana*	59.5	31.8	8.7
Maine	68.2	29.7	2.1
Maryland	60.8	34.3	4.9
Massachusetts	65.9	30.9	3.3
Michigan	59.2	37.9	2.9
Minnesota	64.2	31.7	4.1
Mississippi	61.4	31.2	7.5
Missouri	61.4	34.2	4.4
Montana	62.3	33.5	4.2
Nebraska*	62.9	29.5	7.6
Nevada	59.9	36.7	3.4
New Hampshire*	64.8	31.7	3.5
New Jersey	61.4	35.4	3.1
New Mexico	57.4	37.6	5.0
New York	67.6	29.7	2.8
North Carolina	62.1	31.3	6.5
North Dakota	61.2	30.3	8.5
Ohio	59.5	36.7	3.7
Oklahoma	59.8	34.1	6.2
Oregon	60.5	35.9	3.6
Pennsylvania	64.1	32.2	3.6
Rhode Island	67.0	30.2	2.9
South Carolina	59.6	34.0	6.3
South Dakota	61.4	33.2	5.4
Tennessee	64.8	30.0	5.2
Texas	61.6	33.0	5.4
Utah	66.1	28.0	5.8
Vermont	65.1	31.9	3.0
Virginia*	60.7	34.0	5.3
Washington*	60.0	35.3	4.8
West Virginia	61.9	32.0	6.0
Wisconsin	63.1	33.8	3.1
Wyoming	61.4	35.0	3.6
Outlying areas			
American Samoa	40.2	36.3	23.5
Guam	54.6	39.5	5.8
Northern Marianas	80.5	14.2	5.3
Puerto Rico	70.1	19.5	10.3
Virgin Islands	56.8	37.6	5.6

*Distribution affected by imputations and redistribution of reported values to correct for missing items.

NOTE: Details may not add to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 1996–97.

Table 5—Student membership and current expenditures per pupil in membership for public elementary and secondary schools, by function and state: School year 1996–97

State	Fall 1996 student membership	Current expenditures per pupil in membership: Total	Instruction	Support services	Noninstruction
United States	[1]45,611,046	[1]$5,923	[1]$3,665	[1]$1,996	[1]$262
Alabama	[1]747,932	[1]4,595	[1]2,815	[1]1,443	[1]337
Alaska	129,919	8,231	[2]4,667	3,289	275
Arizona	799,250	4,413	[2]2,534	1,604	276
Arkansas	457,349	4,535	2,827	1,436	272
California	[1]5,686,198	[1]5,260	[1]3,187	[1]1,852	[1]221
Colorado	673,438	5,312	3,283	1,814	215
Connecticut	527,129	[1]8,580	5,466	2,692	[1]423
Delaware	110,549	7,135	4,410	2,368	357
District of Columbia	78,648	8,048	[2]4,283	[2]3,466	299
Florida	2,242,212	5,360	3,137	1,954	269
Georgia	1,346,761	5,369	3,352	1,699	318
Hawaii	187,653	5,633	3,548	1,711	374
Idaho	245,252	4,447	2,787	1,456	204
Illinois	1,973,040	5,940	3,573	2,166	201
Indiana	982,876	6,161	3,852	2,037	271
Iowa	502,941	5,738	3,512	1,945	282
Kansas	466,293	5,508	3,169	2,064	276
Kentucky	656,089	5,155	3,130	1,760	264
Louisiana	793,296	[1]4,724	2,813	1,501	[1]410
Maine	213,593	6,327	4,317	1,879	132
Maryland	818,583	6,755	4,108	2,318	328
Massachusetts	933,898	7,331	4,829	2,263	239
Michigan	1,685,714	6,932	4,103	2,625	204
Minnesota	847,204	6,005	3,855	1,902	248
Mississippi	503,967	4,039	2,479	1,260	301
Missouri	900,517	5,304	3,255	1,815	233
Montana	164,627	5,481	3,415	1,835	231
Nebraska	291,967	5,848	[2]3,679	1,725	[2]444
Nevada	282,131	5,084	3,046	1,867	171
New Hampshire	198,308	5,920	[2]3,835	[2]1,876	[2]210
New Jersey	1,227,832	9,588	5,888	3,398	302
New Mexico	332,632	4,682	2,689	1,761	233
New York	2,843,131	8,525	5,760	2,528	238
North Carolina	1,210,108	4,929	3,062	1,545	323
North Dakota	120,123	4,808	2,940	1,458	410
Ohio	1,844,698	5,935	3,534	2,180	222
Oklahoma	620,695	4,817	2,879	1,641	297
Oregon	537,854	5,920	3,584	2,123	213
Pennsylvania	1,804,256	7,106	4,556	2,291	259
Rhode Island	151,324	7,612	5,099	2,296	217
South Carolina	[1]652,816	[1]5,050	[1]3,011	[1]1,718	[1]320
South Dakota	143,331	4,375	2,684	1,454	237
Tennessee	[1]904,818	[1]4,581	[1]2,971	[1]1,373	[1]238
Texas	3,828,975	5,267	3,245	1,738	283
Utah	481,812	3,783	2,502	1,061	220
Vermont	106,341	6,753	4,395	2,157	201
Virginia	1,096,093	[1]5,788	3,515	1,965	[1]307
Washington	974,504	[2]5,734	[2]3,439	2,022	273
West Virginia	304,052	6,076	3,764	1,945	367
Wisconsin	879,259	6,796	4,290	2,297	209
Wyoming	99,058	5,971	3 667	2,087	217
Outlying areas					
American Samoa	14,766	2,288	920	831	537
Guam	33,393	4,688	2,561	1,854	274
Northern Marianas	9,041	5,878	4,731	836	311
Puerto Rico	618,861	2,902	2,035	567	300
Virgin Islands	22,385	5,458	3,102	2,053	303

[1] Value contains imputation for missing expenditure data.

[2] Value affected by redistribution of reported expenditure values for missing data items.

NOTE: Details may not add to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 1996–97.

POSTSECONDARY EDUCATION

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Students With Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes

Laura Horn and Jennifer Berktold

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from several surveys, which are listed at the end of this article.

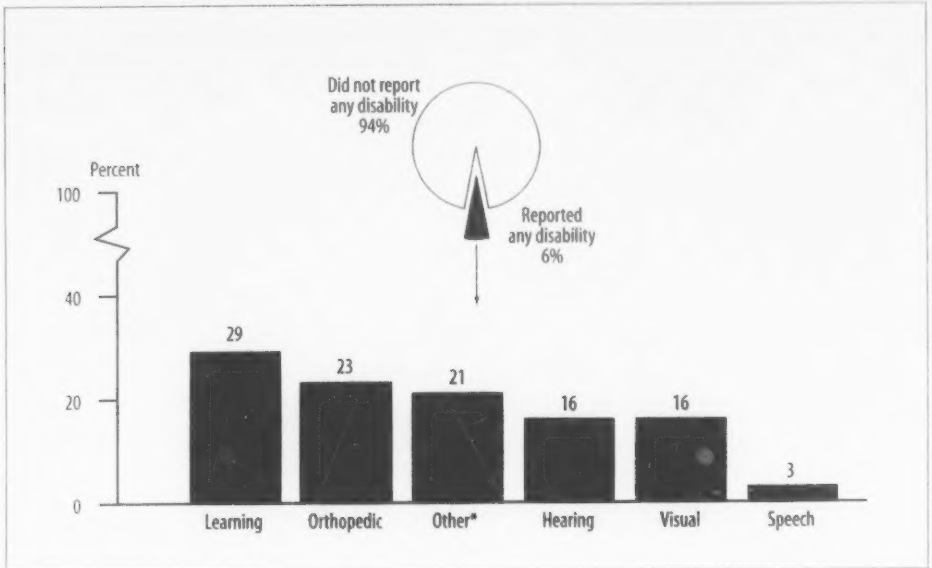
This report provides a comprehensive profile of students with disabilities enrolled in postsecondary education. It is based on an analysis of four different surveys conducted by the National Center for Education Statistics, which were used to address the following four issues: (1) How are students with disabilities represented in postsecondary education? (2) Who among high school students with disabilities gains access to postsecondary education? (3) Among those students with disabilities who enroll in postsecondary education, how well do they persist to degree attainment? and (4) Among college graduates, what are the early labor market outcomes and graduate school enrollment rates of students with disabilities? The following is a summary of the key findings for each of the four main issues addressed in the report.

How Are Students With Disabilities Represented in Postsecondary Education?

In the 1995–96 academic year, as part of the National Postsecondary Student Aid Study (NPSAS:96), a nationally representative sample of about 21,000 undergraduates were asked: "Do you have any disabilities, such as hearing, speech, mobility impairment, or vision problems that can't be corrected with glasses?" About 6 percent replied "yes" (figure A). When asked about specific disabilities, among the 6 percent of undergraduates who reported any disabilities, 29 percent said they had a learning disability; 23 percent reported having an orthopedic impairment; 16 percent reported a noncorrectable vision impairment; 16 percent were hearing impaired or deaf; and 3 percent reported a speech impairment. One in five (21 percent) reported having some "other health-related" disability. Compared with students without disabilities, students with disabilities were more likely to be men, to be older, and to be white, non-Hispanic.

Compared with their counterparts who reported no disabilities, students with disabilities differed in the types of institutions they attended. They were less likely to be enrolled in public 4-year institutions, about as likely to be

Figure A—Percentage of 1995–96 undergraduates who reported a disability, and among those with disabilities, the percentage reporting each disability type



*Any other health-related disability or impairment.

NOTE: Percentages do not sum to 100 because some students reported multiple disabilities.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS: 96), Undergraduate Data Analysis System.

enrolled in private, not-for-profit 4-year institutions, and more likely to be enrolled in subbaccalaureate institutions such as public 2-year colleges. There were no apparent differences, however, between undergraduates with and without disabilities with respect to their general fields of study. For example, roughly one-fifth of students with and without disabilities (17 and 20 percent, respectively) were in business-related fields; 18 and 15 percent, respectively, were in humanities; and 11 and 13 percent, respectively, were in health fields.

With respect to financing their education, students with and without disabilities did not differ to a great extent in either the likelihood of receiving financial aid or in the average total amount of aid received. However, when examining specific institutional sectors and specific types of financial aid received, differences did emerge, especially among students enrolled in public 4-year colleges. For example, among dependent students (i.e., those who are financially dependent on their parents) in public 4-year colleges, students with disabilities were less likely to receive financial aid (48 versus 59 percent), whether in the form of grants (31 versus 42 percent), loans (29 versus 38 percent), or work study (4 versus 8 percent). Since the award of federal financial aid is based on a student budget made up of the student's financial need and the price of the institution, it is possible that dependent students with disabilities attending public 4-year colleges were enrolled in lower priced institutions than their counterparts without disabilities. Differences may also be due in part to the fact that some students with disabilities receive supplemental income such as Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI).

Who Gets to College?

Based on data from a nationally representative sample of students who were in the eighth grade in 1988, the National Education Longitudinal Study of 1988 (NELS:88/94), students with disabilities were less likely to enroll in postsecondary education among those who completed high school by 1994 (table A). As of 1994, about 2 years after most finished high school, approximately 63 percent of students with disabilities had enrolled in some form of postsecondary education, compared with about 72 percent of students without disabilities. Among those who enrolled, nearly one-half of students with disabilities (45 percent) enrolled in public 2-year institutions, compared with one-third of students without disabilities. Conversely, students with disabilities were less likely to enroll in the 4-year sector (42 percent) than their counterparts without disabilities (62 percent).

When students were ranked according to how qualified they were for admission to a 4-year college, students with disabilities were much less likely to be even minimally qualified.* Among those who were qualified, students with and without disabilities were just as likely to enroll in some form of postsecondary education. Students with and without disabilities who were very to highly qualified for admission to a 4-year college (had scores in the top 10 to 25 percent of entering 4-year college students) enrolled at similar rates. However, among students who were ranked as "minimally to somewhat" qualified for admission to a 4-year college (had scores in the top 50 to 75 percent of entering 4-year college students), students with disabilities were less likely than their counterparts without disabilities to enroll in the 4-year sector (41 versus 54 percent) and more likely to enroll in public 2-year institutions (35 versus 25 percent). In other words, despite being at least minimally qualified for admission to a 4-year institution, students with disabilities were less likely to enroll in the 4-year sector. Research has shown that a majority of students who enroll in the 2-year sector with the intention of later transferring to a 4-year institution do not transfer. Therefore, these students may be reducing their chances of earning a bachelor's degree.

Taking a closer look at the students who enrolled in any postsecondary education, there were a number of apparent differences with respect to high school academic preparation and performance between students with and without disabilities. Those with disabilities were more likely to have taken remedial mathematics and English courses in high school, less likely to have taken advanced placement courses, had lower high school GPAs, and had lower average SAT entrance exam scores.

Overall, with respect to gaining access to higher education, the data indicate that students with disabilities fall behind their counterparts without disabilities in their high school academic preparation for college. As a consequence, students with disabilities are less likely to be academically qualified for admission to a 4-year college and, among those who enroll in postsecondary education, students with disabilities may be less prepared to undertake college-level courses.

Table A—Among 1988 eighth-graders who completed high school, the percentage who enrolled in postsecondary education by 1994, and percentage distribution according to type of institution, by disability status and type

		4-year institutions			Other institutions		
	Total enrolled	Total	Public	Private, not-for-profit	Total	Public 2-year	Other[1]
Total	70.4	59.4	39.8	19.6	40.6	34.4	6.2
Does not have a disability	71.7	61.5	41.3	20.2	38.6	33.3	5.3
Has a disability	62.8	42.0	28.1	14.0	58.0	44.9	13.1
Visual impairment	70.4	48.4	30.9	17.6	51.6	44.2	7.4
Hearing impairment or deaf	60.2	39.8	33.5	6.3	60.2	47.0	13.2
Speech impairment	58.5	49.0	34.5	14.5	51.0	47.6	3.5
Orthopedic impairment	73.9	71.4	53.6	17.8	28.7	23.6	5.1
Learning disability	57.5	28.2	17.6	10.5	71.8	53.9	17.9
Other disability or impairment[2]	65.9	44.3	28.4	15.9	55.7	42.8	13.0

[1] Students enrolled in private, for-profit institutions; public less-than-2-year institutions; or private, not-for-profit less-than-4-year institutions.

[2] Student had any other disability, including health problems, emotional problems, mental retardation, or other physical disabilities, and had received services for it.

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, Third Follow-up Survey, 1994 (NELS:88/94), Data Analysis System.

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*This was based on an index score of grades, rank in school, GPA, NELS composite test scores, and SAT/ACT scores of the top 75 percent of students actually admitted to a 4-year institution. To be minimally qualified, students had to be ranked at or above the 54th percentile in their class, have a GPA of 2.7 or higher in academic courses, have a combined SAT score of 820 or above (or ACT composite of 19 or above), or score at the 56th percentile or higher on the 1992 NELS mathematics and reading aptitude tests.

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Who Stays in College?

A survey of undergraduates who enrolled in postsecondary education for the first time in 1989–90 and who were last surveyed in 1994, the Beginning Postsecondary Students Longitudinal Study (BPS:90/94), indicates that students who reported any disabilities were less likely than their counterparts without disabilities to have stayed enrolled or earned a postsecondary degree or credential within 5 years (figure B). As of 1994, 53 percent of students with disabilities had attained a degree or vocational certificate or were still enrolled, compared with 64 percent of their counterparts without disabilities. Among students with disabilities, 16 percent attained a bachelor's degree; 6 percent attained an associate's degree; and 19 percent earned a vocational certificate. The corresponding percentages for students without disabilities were 27 percent, 12 percent, and 13 percent, respectively.

The postsecondary outcomes of students with disabilities, however, may not be directly comparable to those students without disabilities. Compared to their counterparts without disabilities, those with disabilities who first enrolled in postsecondary education in 1989–90 were more likely to have attributes associated with lower rates of persistence and degree attainment. For example, students with disabilities were more likely to have delayed their postsecondary enrollment a year or more after finishing high school (43 versus 32 percent). They were also more likely to have completed high school through earning a GED (i.e., they passed the General Education Development exam) or alternative high school credential (12 versus 6 percent). Corresponding to being older, students with disabilities were also more likely to have dependents other than a spouse (25 versus 13 percent). All of these attributes are associated with lower persistence and degree attainment rates. Thus, in addition to the obstacles they may have experienced related to their disabilities, students with disabilities were also more likely to have other experiences and circumstances that potentially conflicted with their schooling. Despite such impediments, however, more than half of students with disabilities had persisted in postsecondary education: 41 percent had earned a credential and an additional 12 percent were still enrolled in 1994.

How Do College Graduates Fare?

While students with disabilities are less likely to persist in postsecondary education and attain a credential, those who earn a bachelor's degree appear to have relatively similar early labor market outcomes and graduate school enrollment rates as their counterparts without disabilities. Based on data from a cohort of students who earned bachelor's degrees in 1992–93, the Baccalaureate and Beyond Longitudinal Study (B&B:93/94) found that as of April 1994, most students, regardless of disability status, reported that they were working (figure C). Students with disabilities however, were more likely to be unemployed (11 versus 4 percent). Among college graduates who were working, the annual full-time salaries of students with and without disabilities did not differ significantly. There was also no difference in the likelihood of college graduates with and without disabilities reporting that their job was related to their degree: 58 percent of students with disabilities and 55 percent of those without disabilities reported that their job was closely related to their bachelor's degree. Finally, similar proportions of college graduates with and without disabilities had enrolled in graduate school within 1 year after earning their bachelor's degrees.

Data sources: The 1995–96 National Postsecondary Student Aid Study (NPSAS:96); the National Education Longitudinal Study of 1988, Third Follow-up Survey, 1994 (NELS:88/94); the 1990 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94); and the 1993 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B:93/94).

For technical information, see the complete report:

Horn, L., and Berktold, J. (1999). *Students With Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes* (NCES 1999–187).

For additional details on survey methodology, see

Riccobono, J.A., Whitmore, R.W., Gabel, T.J., Traccarella, M.A., Pratt, D.J., and Berkner, L.K. (1997). *National Postsecondary Student Aid Study: 1995–96 (NPSAS:96) Methodology Report* (NCES 98–073).

Haggerty, C., Dugoni, B., Reed, L., Cederlund, A., and Taylor, J. (1996). *National Education Longitudinal Study: 1988–1994 (NELS:88/94) Methodology Report* (NCES 96–174).

Green, P.J., Meyers, S.L., Giese, P., Law, J., Speizer, H.M., Tardino, V.S., and Knepper, P. (1996). *Baccalaureate and Beyond Longitudinal Study: 1993/94 First Follow-up Methodology Report* (NCES 96–149).

Pratt, D.J., Whitmore, R.W., Wine, J.S., Blackwell, K.M., Forsyth, B.H., Smith, T.K., Becker, E.A., Veith, K.J., Mitchell, M., and Borman, G.D. (1996). *Beginning Postsecondary Students Longitudinal Study Second Follow-up (BPS:90/94) Final Technical Report* (NCES 96–153).

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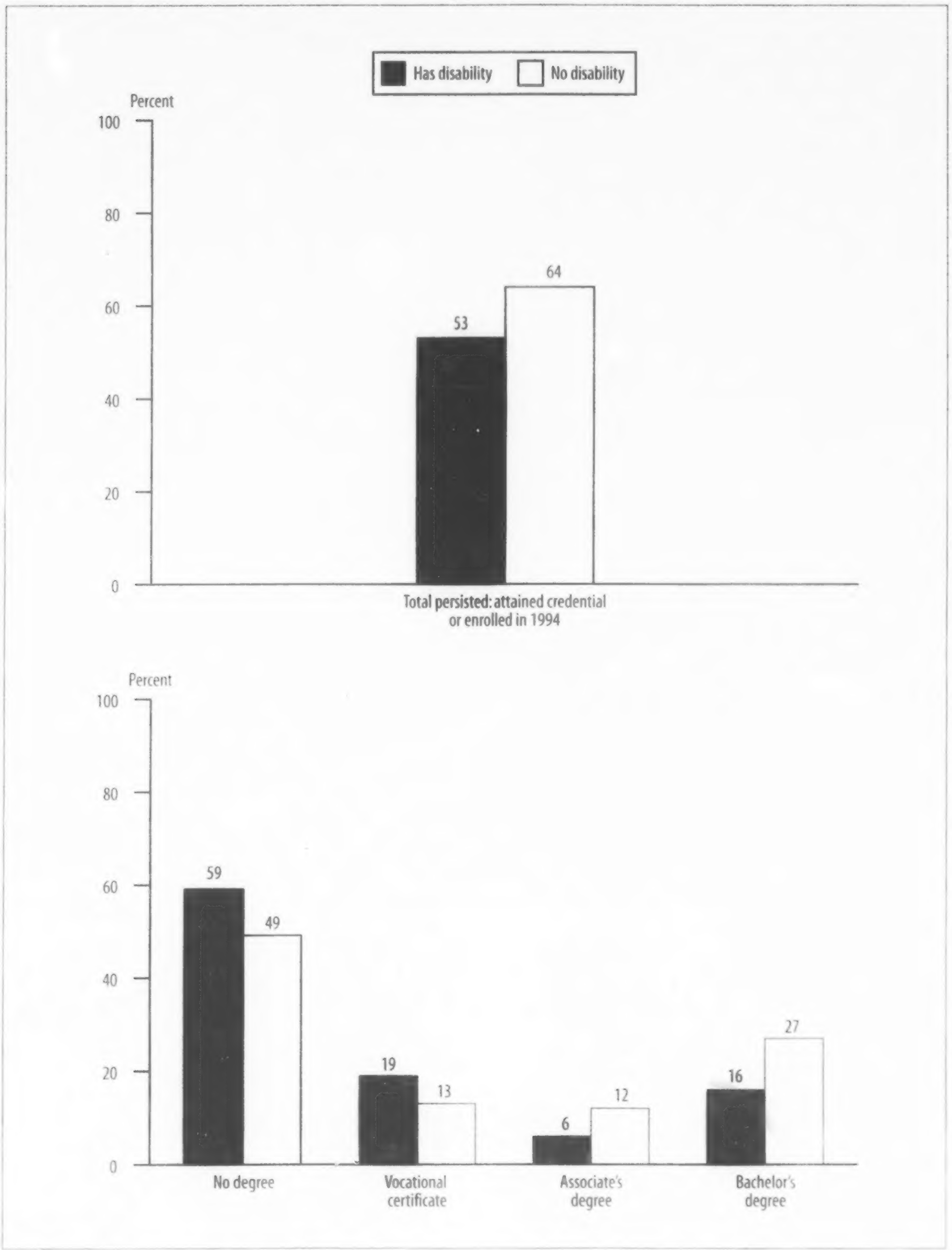
To obtain the complete report (NCES 1999–187), call the toll-free ED Pubs number (877-433-7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202-512-1800).

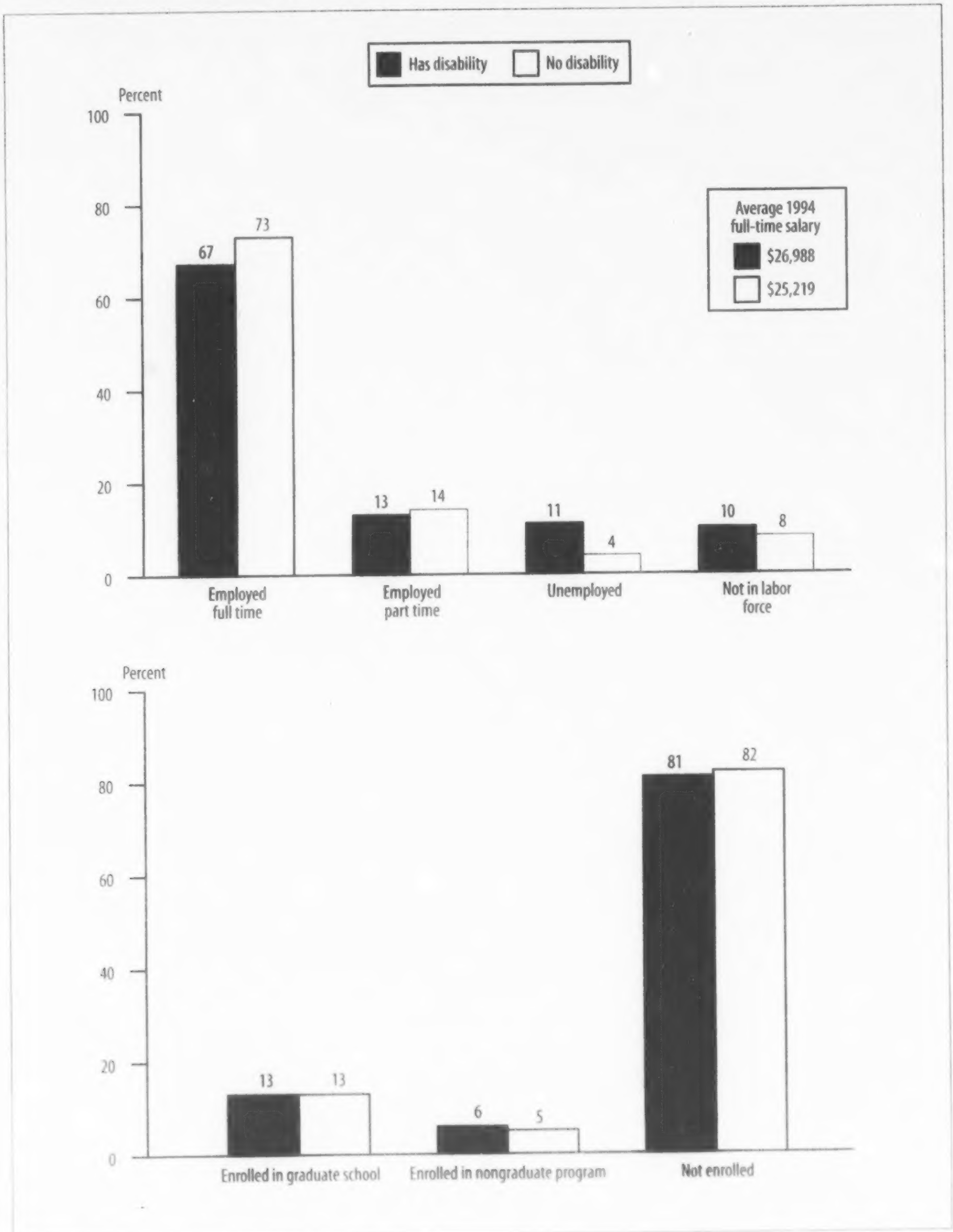
Figure B—Percentage of 1989–90 beginning postsecondary students according to their persistence status in 1994 and highest degree attained, by disability status



NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS: 90/94), Data Analysis System.

Figure C—Among 1992–93 bachelor's degree recipients, percentage distribution according to employment status and graduate school enrollment, by disability status



NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, First Follow-up (B&B: 93/94), Data Analysis System.

An Institutional Perspective on Students With Disabilities in Postsecondary Education

Laurie Lewis and Elizabeth Farris

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the "Survey on Students With Disabilities at Postsecondary Education Institutions," conducted through the NCES Postsecondary Education Quick Information System (PEQIS).

Key legislation, such as the Americans with Disabilities Act (ADA) and the Individuals with Disabilities Education Act (IDEA), has prompted numerous questions regarding access, support, and accommodations for students with disabilities in postsecondary education institutions. These institutions are required by law to provide reasonable accommodations to students with disabilities to ensure equal access to educational opportunities for these students. However, there have been no nationally representative data available from postsecondary institutions about the enrollment of students with disabilities and the support services and accommodations these institutions provide to students with disabilities. Moreover, since no information has been available about the recordkeeping and reporting capabilities of postsecondary institutions regarding students with disabilities, it has been difficult to assess the extent to which postsecondary institutions can provide information about these students.

In response, this study, requested by the Office of Special Education and Rehabilitative Services (OSERS), U.S. Department of Education, provides nationally representative data from 2-year and 4-year postsecondary education institutions about students with disabilities. Specifically, the survey, undertaken by the National Center for Education Statistics (NCES) using the Postsecondary Education Quick Information System (PEQIS), includes information about (1) enrollments of postsecondary students with disabilities, (2) institutions enrolling students with disabilities, (3) support services and accommodations designed for students with disabilities, (4) education materials and activities designed to assist faculty and staff in working with students with disabilities, and (5) institutional records and reporting about students with disabilities. Information contained in this report is restricted to those students who had identified themselves in some way to the institution as having a disability, since these are the only students about whom the institutions could report. Note that students who identify themselves to the institution as having a disability are a subset of all students with disabilities, since some students with disabilities may choose not to identify themselves to their institutions.

Key Findings

Number of postsecondary students with disabilities

An estimated 428,280 students with disabilities were enrolled at 2-year and 4-year postsecondary education institutions in 1996–97 or 1997–98. Most of the students were enrolled at public 2-year and public 4-year institutions, and at medium and large institutions. Learning disabilities were the most frequent disability, with almost half of the students with disabilities (195,870 out of 428,280 students) in this category. Institutions reported 59,650 students with mobility or orthopedic impairments, 49,570 students with health impairments or problems, and 33,260 students with mental illnesses or emotional disturbances. Institutions also reported 23,860 students with hearing impairments, 18,650 students who were blind or visually impaired, and 4,020 students who had speech or language impairments. The remaining 38,410 students were reported by the institutions in the "other (specify)" category.

Institutions enrolling students with disabilities

About three-quarters (72 percent) of the nation's 5,040 2-year and 4-year postsecondary education institutions enrolled students with disabilities in 1996–97 or 1997–98. Almost all (98 percent) public 2-year and public 4-year institutions enrolled students with disabilities, compared with 63 percent of private 4-year and 47 percent of private 2-year institutions. Virtually all medium and large institutions (99 and 100 percent, respectively) enrolled students with disabilities, compared with 63 percent of small institutions.

Support services and accommodations for students with disabilities

Almost all (98 percent) of the institutions that enrolled students with disabilities in 1996–97 or 1997–98 had provided at least one support service or accommodation to a student with disabilities. Most institutions (88 percent) had provided alternative exam formats or additional time, and 77 percent provided tutors to assist with ongoing coursework (table A). Readers, classroom notetakers, or scribes were provided by 69 percent of the institutions, and registration assistance or priority class registration was provided by 62 percent. Institutions also frequently provided adaptive equipment or technology, such as assistive listening devices or talking computers (58 percent), and textbooks on tape (55 percent). Sign language interpreters/transliterators were provided by 45 percent of the institutions, and course substitutions or waivers by 42 percent. Various other support services were provided by one-third or fewer of the institutions.

In general, public 2-year and 4-year institutions were more likely than private 2-year and 4-year institutions to have provided a service or accommodation (table A), and medium and large institutions were more likely than small institutions to have provided a service or accommodation. Large institutions were also more likely than medium institutions to have provided many of the services.

Materials and activities designed for working with students with disabilities

Almost all (95 percent) of the institutions that enrolled students with disabilities in 1996–97 or 1997–98 provided at least one kind of education material or activity for faculty and staff designed to assist them in working with students with disabilities. Most of these institutions (92 percent) provided one-on-one discussions with faculty and staff who request information and assistance, 63 percent provided workshops and presentations to faculty groups, 62 percent had information resources available for faculty and staff use, 41 percent had a faculty/staff handbook, and 32 percent did annual mailings to faculty and staff.

Records about students with disabilities

Twenty-eight percent of the institutions indicated that their counts of students with disabilities included only those students to whom services or accommodations were provided; 38 percent reported that their counts were based on students who provided verification of their disabilities, regardless of whether services or accommodations were provided; 22 percent included students who identified themselves to the disability support services office or coordinator, regardless of verification or provision of services; and 12 percent said that their counts were based on all students that had been reported to the disability support services office or coordinator, regardless of whether that office had any contact with them.

About three-quarters of the institutions maintaining records about students with disabilities indicated that their records currently contained information about level (undergraduate/graduate), and about two-thirds indicated that their records contained information about sex, age or date of birth, and major field of study/program. Attendance status (full or part time) was included by 59 percent of the institutions, race/ethnicity by 49 percent, and certificates or degrees awarded by 45 percent. About a third of the institutions included information about whether a student receives financial aid. Information not currently contained in the records about students with disabilities could be added or merged to the records by almost all the institutions without the information on their records.

Half of the institutions reported that their records about students with disabilities are maintained only in paper files by the office or person responsible for providing support services to students with disabilities, and 20 percent indicated that the records are maintained in a separate computerized database by the disability support services office or coordinator. Records are maintained in a computerized database as part of the general student record system and are accessible to various institutional offices at 13 percent of the institutions. They are part of the general student record system but accessible only to the disability support services office or coordinator at 8 percent of the institutions. Nine percent of the institutions reported that they maintained no formal records about students with disabilities.

Related Report

This PEQIS study complements another NCES report, *Students With Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes* (Horn and Berktold 1999; see previous article). That report, also requested by OSERS, profiles *students* with disabilities, while this PEQIS report profiles postsecondary *institutions*. That is, the other report is based on student self-reports, while this PEQIS study is based on institutional reports.

Table A—Percent of 2-year and 4-year postsecondary education institutions enrolling students with disabilities that provided various services or accommodations to students with disabilities during 1996–97 or 1997–98, by institutional characteristics

Institutional characteristic	Sign language interpreters/ transliterators	Oral interpreters/ transliterators	Adaptive equipment and technology	Readers, classroom notetakers, or scribes	Paratransit for on-campus mobility	Personal attendants	Independent living skills training	Textbooks on tape	Tutors to assist with ongoing coursework
All institutions	45	22	58	69	13	10	5	55	77
Institutional type									
Public 2-year	66	33	81	82	12	11	10	66	87
Private 2-year	10	(+)	30	18	3	9	(+)	11	51
Public 4-year	68	39	80	93	31	9	6	85	82
Private 4-year	29	14	39	66	11	9	1	49	75
Geographic region									
Northeast	40	17	59	78	13	7	2	59	84
Southeast	39	21	56	60	12	9	6	46	72
Central	49	21	57	76	11	14	4	62	83
West	51	29	61	64	17	8	7	55	70
Size of institution									
Less than 3,000	28	12	43	55	6	11	4	40	71
3,000 to 9,999	71	37	86	93	22	7	6	82	90
10,000 or more	96	56	97	*100	41	8	10	93	84

Table A—Percent of 2-year and 4-year postsecondary education institutions enrolling students with disabilities that provided various services or accommodations to students with disabilities during 1996–97 or 1997–98, by institutional characteristics—Continued

Institutional characteristic	Alternative exam formats or additional time	Course substitution or waiver	Adaptive physical education courses or sports	Registration assistance or priority class registration	Special orientation	Disability resource handbook	Special career or placement services targeted for disabled students	Disability benefits counseling	Other
All institutions	88	42	21	62	32	24	22	33	19
Institutional type									
Public 2-year	94	48	26	77	46	35	32	51	17
Private 2-year	55	15	4	26	16	5	10	19	11
Public 4-year	100	69	42	83	46	47	34	43	26
Private 4-year	90	35	14	53	19	10	10	16	20
Geographic region									
Northeast	93	50	18	64	37	23	21	30	25
Southeast	87	46	22	64	29	22	24	42	14
Central	91	37	17	58	31	24	20	28	19
West	82	36	27	61	32	26	20	29	18
Size of institution									
Less than 3,000	82	29	13	48	21	11	13	26	16
3,000 to 9,999	99	61	30	88	48	39	32	45	21
10,000 or more	100	81	56	95	66	68	51	49	30

(+) Less than 0.5 percent.

*Rounds to 100 percent for presentation in the table.

NOTE: Percentages are based on institutions that enrolled students with disabilities in 1996–97 or 1997–98. Information about students with disabilities represents only those students who identified themselves to their institution as having a disability, since these are the only students about whom the institutions could report. The accommodations listed in the table are not the only accommodations a student may need.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Survey on Students With Disabilities at Postsecondary Education Institutions," 1998. (Originally published as table 10 on p. 14 of the complete report from which this article is excerpted.)

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Horn, L., and Berktold, J. (1999). *Students With Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes* (NCES 1999–187). U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Data source: The NCES Postsecondary Education Quick Information System (PEQIS), "Survey on Students With Disabilities at Postsecondary Education Institutions," 1998.

For technical information, see the complete report:

Lewis, L., and Farris, E. (1999). *An Institutional Perspective on Students With Disabilities in Postsecondary Education* (NCES 1999–046).

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To obtain the complete report (NCES 1999–046), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

Trends in Student Borrowing

This article was originally published as an Indicator of the Month, taken from The Condition of Education: 1998. *The sample survey data are from the NCES National Postsecondary Student Aid Study (NPSAS).*

The proportion of student financial aid that consists of loans has increased over time. Federal loan programs are the major source of student financial aid. While loans allow some students to attend a postsecondary institution who otherwise could not, many are concerned that some students are increasingly burdened with high debts after graduation. The cumulative amount of loans incurred while students progress through their undergraduate studies is one measure of burden.

- The percentage of undergraduate students attending 4-year institutions who borrowed from federal loan programs during the academic year increased by about 11 percentage points at public 4-year and by about 10 percentage points at private, not-for-profit 4-year institutions between 1992–93 and 1995–96. The average amount borrowed in each year also increased, from $3,000 to $4,100 at public 4-year institutions, and from $3,600 to $4,500 at private, not-for-profit 4-year institutions.
- The percentage of dependent undergraduates with family incomes of $50,000 or more who ever borrowed from federal loan programs increased between 1992–93 and 1995–96 at both public and private, not-for-profit 4-year institutions. For example, in 1992–93, 21 percent of dependent undergraduates at public 4-year institutions from families making between $50,000 and $59,999 had ever borrowed. By 1995–96, 44 percent of undergraduates from families in that income range had borrowed.
- In both years, differences in attendance costs between public and private, not-for-profit 4-year institutions were reflected in the higher amounts borrowed by undergraduates attending private, not-for-profit institutions. At each class level, undergraduate students at private institutions borrowed more than those at public institutions.

Percentage of undergraduates who borrowed, and the average amount and average cumulative amount borrowed from federal loan programs, by control and type of institution and class level: Academic years 1992–93 and 1995–96

Control and type of institution and class level[1]	1992–93				1995–96			
	Current year				Current year			
	Percent who borrowed	Average amount borrowed	Percent who ever borrowed	Average cumulative amount borrowed	Percent who borrowed	Average amount borrowed	Percent who ever borrowed	Average cumulative amount borrowed
Total	19.2%	$3,186	30.6%	$5,439	25.3%	$4,041	37.7%	$7,047
Public 4-year	24.5	3,007	36.0	5,915	35.4	4,130	47.2	7,904
Freshman	22.4	2,472	30.2	3,281	35.0	2,777	41.1	3,547
Sophomore	24.3	2,676	34.4	4,493	32.9	3,538	44.0	5,674
Junior	26.6	3,196	37.3	6,093	37.9	4,569	49.5	8,244
Senior[2]	25.7	3,385	40.9	7,793	36.8	4,970	52.1	11,038
Private, not-for-profit 4-year	34.6	3,591	44.9	6,984	44.3	4,499	53.7	8,682
Freshman	33.9	3,041	41.5	3,566	43.5	3,237	49.5	4,017
Sophomore	33.8	3,083	42.1	5,611	45.8	3,970	52.6	6,945
Junior	37.6	3,915	47.5	7,722	48.5	5,287	58.0	9,880
Senior[2]	35.4	4,193	48.7	10,023	42.9	5,564	56.4	13,159
Public 2-year	6.0	2,542	18.2	3,987	6.0	2,840	20.5	4,605
First year	5.2	2,346	16.3	3,510	5.1	2,546	17.8	4,188
Second year	6.9	2,768	19.9	3,943	8.6	3,175	26.2	4,987

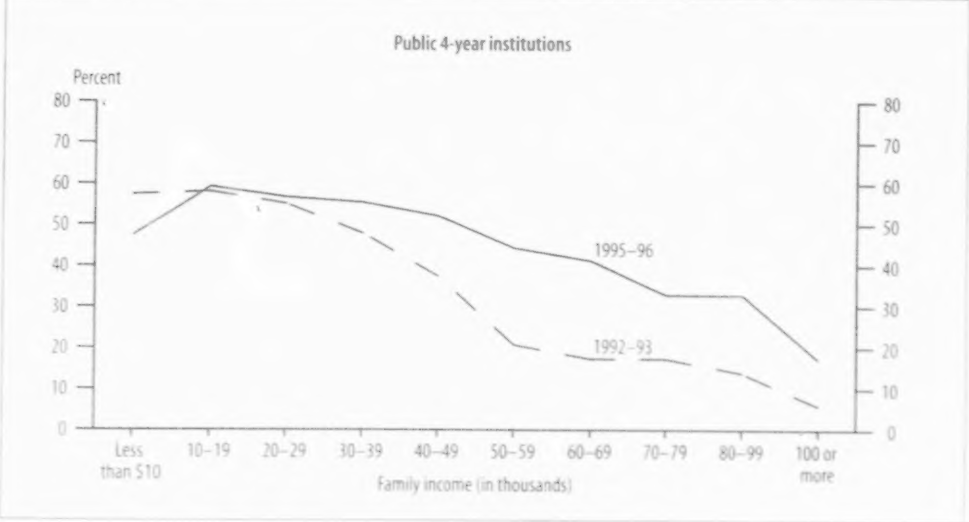
[1] Class level is based on credit accumulation.

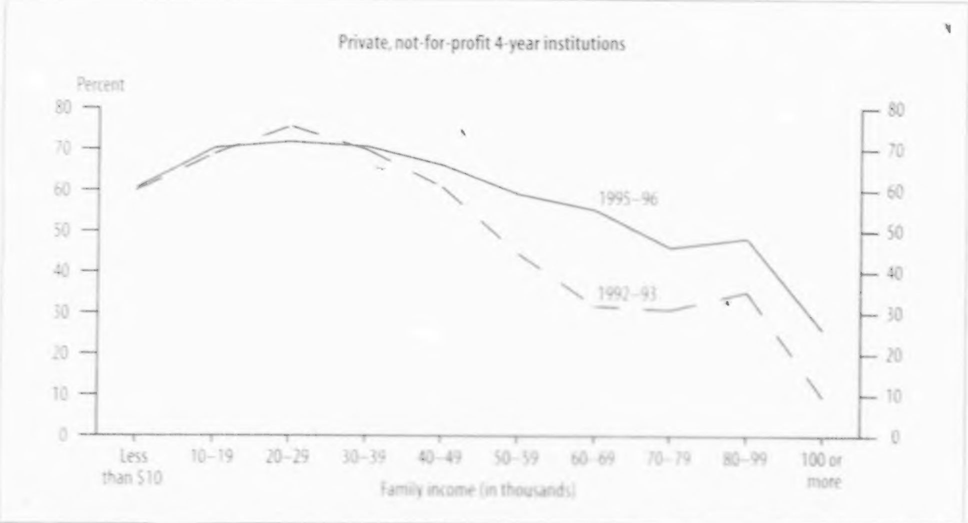
[2] Includes 4th- and 5th-year seniors.

NOTE: Students attending more than one institution are excluded. Percentages and amounts for federal loan programs exclude Parent Loans to Undergraduate Students (PLUS).

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS:93 and NPSAS:96).

Percentage of dependent undergraduates who ever borrowed from federal loan programs, by family income: Academic years 1992–93 and 1995–96





NOTE: Percentages and amounts for federal loan programs exclude Parent Loans to Undergraduate Students (PLUS).

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS:93 and NPSAS:96).

Data source: The NCES National Postsecondary Student Aid Study (NPSAS:93 and NPSAS:96).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education: 1998* (NCES 98-013).

Berkner, L., and Malizio, A.G. (1998). *Student Financing of Undergraduate Education: 1995–96, With an Essay on Student Loans* (NCES 98-076).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1998* (*http://nces.ed.gov/pubs98/condition98/index.html*), or
- volume 2 of the printed version (1999): *The Condition of Education: 1998 Supplemental and Standard Error Tables* (NCES 1999-025).

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To obtain this Indicator of the Month (NCES 1999-010), call the toll-free ED Pubs number (877-433-7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Postsecondary Institutions in the United States: 1997–98

Roslyn A. Korb and Austin F. Lin

This article was originally published as an E.D. Tabs report. The universe data are from the "Institutional Characteristics Survey" (IC), part of the NCES Integrated Postsecondary Education Data System (IPEDS). The Methodology section from the original report has been omitted.

This report presents tabulations for the 1997–98 academic year that describe postsecondary education institutions in the United States (50 states and the District of Columbia). The data are from the "Institutional Characteristics Survey" (IC), a component of the Integrated Postsecondary Education Data System (IPEDS) of the U.S. Department of Education's National Center for Education Statistics (NCES).

IPEDS defines a postsecondary institution as an organization that is open to the public and whose primary mission is to provide education and/or training beyond the high school level. In 1997–98, 9,632 institutions that fit this definition constituted the IPEDS universe (table 1). Each year a concerted effort is made to identify any postsecondary institutions that might have opened during the year as well as to identify those that closed. That effort includes contacting state IPEDS coordinators about new institutions in their states and scrutinizing lists of postsecondary institutions to identify any that are not already in the IPEDS universe. It may be, however, that there are more postsecondary institutions in the nation than the 9,632 institutions IPEDS has identified. An area search conducted during the 1995–96 academic year indicated that IPEDS may be underestimating the postsecondary institutional universe by as much as 13 percent (Jan Plotczyk, U.S. Census Bureau—unpublished correspondence 1997).

IPEDS sorts the over 9,600 postsecondary institutions in the nation into several classes for descriptive purposes as well as for data collection purposes. One of the first considerations in classifying a postsecondary institution is whether or not the institution is eligible to participate in the Title IV federal student financial aid programs, such as Pell Grants or Stafford Loans. As table 1 indicates, over two-thirds (6,808, or 71 percent) of all postsecondary institutions in IPEDS were eligible to participate in Title IV programs in 1997–98.*

A second consideration in classifying institutions is the institution's degree-granting status. Institutions are considered as degree granting if they awarded at least one associate's or higher degree in the previous academic year (1996–97). As table 1 indicates, fewer than half of the postsecondary institutions in the 1997–98 IPEDS universe (4,495, or 47 percent) granted a degree in 1996–97. Table 1 also indicates that more than 90 percent of the degree-granting institutions in IPEDS participated in Title IV programs, but about half (53 percent) of the non-degree-granting institutions participated in Title IV programs. The 4,096 institutions that are eligible for Title IV programs and that grant degrees constitute the current universe of higher education institutions.

When postsecondary institutions are further classified by highest level of offering and control, some additional findings emerge. Forty-seven percent of all postsecondary institutions in the country are operated on a for-profit basis; 29 percent are private, non-profit institutions; and 23 percent are public. Among for-profit institutions, 57 percent participated in Title IV programs; 73 percent of the private, non-profit institutions participated in Title IV programs; and all but 80 (i.e., all but 4 percent) of the public postsecondary institutions participated in Title IV programs. On the other hand, 70 percent (1,988 institutions) of all institutions that were not eligible for Title IV participation were for-profit institutions. Among degree-granting institutions, 84 percent of non-eligible institutions were private, non-profit institutions.

About 3 in 10 postsecondary institutions in the nation offer a program of 4 years or longer. More than half the postsecondary institutions in the country (56 percent) have relatively short programs of 2 years or less (table 1). The distribution of Title IV eligible institutions by length of longest program is quite similar to that of all postsecondary institutions in the nation except that a smaller percentage of the eligible schools have only very short programs of less than 1 year. Among eligible degree-granting institutions, 43 percent do not grant bachelor's degrees, and among all non-degree-granting institutions, 21 percent have programs longer than 2 years (table 1).

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*Institutions are eligible to participate in Title IV programs if they meet all of the following conditions: They are accredited by an agency or organization recognized by the U.S. Department of Education, they have a program of over 600 clock hours, they have been in business for at least 2 years, and they have signed a participation agreement with the Office of Postsecondary Education (OPE) in the Department of Education. Title IV eligibility was verified with OPE's list of participating institutions for the 1997–98 academic year. In this report, the term "eligible institution" means an institution that is eligible to participate in Title IV programs.

Table 1—Number of postsecondary institutions, by Title IV eligibility and control of institution, and by degree-granting status and highest level of offering: 50 states and the District of Columbia, academic year 1997–98

		Eligible				Not eligible			
				Private				Private	
Highest level of offering	**All Institutions**	**Total**	**Public**	**Non-profit**	**For-profit**	**Total**	**Public**	**Non-profit**	**For-profit**
All institutions	9,632	6,808	2,172	2,052	2,584	2,824	80	756	1,988
Less than 1 year	1,843	311	14	17	280	1,532	22	132	1,378
One but less than 2 years	2,213	1,668	297	86	1,285	545	31	57	457
Associate's degree	1,378	1,343	746	161	436	35	4	18	13
Two but less than 4 years	1,381	1,109	492	210	407	272	20	165	87
Bachelor's degree	761	655	64	501	90	106	1	100	5
Postbaccalaureate certificate	151	89	28	51	10	62	2	54	6
Master's degree	903	820	194	565	61	83	0	77	6
Post-master's certificate	194	164	85	79	0	30	0	25	5
Doctor's degree	714	592	244	335	13	122	0	103	19
First-professional degree only[1]	79	52	7	43	2	27	0	17	10
First-professional certificate only[2]	8	4	1	3	0	4	0	2	2
Other/did not respond[3]	7	1	0	1	0	6	0	6	0
Degree granting	4,495	4,096	1,707	1,720	669	399	5	337	57
Associate's degree	1,378	1,343	746	161	436	35	4	18	13
Two but less than 4 years	451	433	346	23	64	18	0	15	3
Bachelor's degree	761	655	64	501	90	106	1	100	5
Postbaccalaureate certificate	44	40	21	16	3	4	0	4	0
Master's degree	903	820	194	565	61	83	0	77	6
Post-master's certificate	163	160	85	75	0	3	0	2	1
Doctor's degree	714	592	244	335	13	122	0	103	19
First-professional degree only[1]	79	52	7	43	2	27	0	17	10
Other/did not respond[4]	2	1	0	1	0	1	0	1	0
Non-degree granting	5,137	2,712	465	332	1,915	2,425	75	419	1,931
Less than 1 year	1,843	311	14	17	280	1,532	22	132	1,378
One but less than 2 years	2,213	1,668	297	86	1,285	545	31	57	457
Two but less than 4 years	930	676	146	187	343	254	20	150	84
Postbaccalaureate certificate	107	49	7	35	7	58	2	50	6
Post-master's certificate	31	4	0	4	0	27	0	23	4
First-professional certificate only[2]	8	4	1	3	0	4	0	2	2
Other/did not respond[5]	5	0	0	0	0	5	0	5	0

[1] These institutions offer only first-professional degrees or certificates.

[2] These institutions offer only first-professional certificates.

[3] Includes schools that offer a 4- or 5-year diploma program that may or may not offer an associate's degree.

[4] Includes schools that offer a 4- or 5-year diploma program and offer an associate's degree.

[5] Includes schools that offer a 4- or 5-year diploma program.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

Tables 2 and 3 in conjunction with table 1 demonstrate that many postsecondary institutions offer several levels of degrees or awards. For example, table 1 indicates that for 1,378 institutions, an associate's degree is their highest level of offering. Tables 2 and 3 indicate that 2,718 Title IV eligible institutions in the nation offer an associate's degree, suggesting that about 1,300 institutions that offer an associate's degree also offer a higher level of degree or other formal award.

Most public institutions (73 percent) are under some level of state control (table 4). However, 29 percent of all Title IV eligible public institutions (table 4) and 19 percent of eligible degree-granting public institutions (table 5) are also under some level of local control (school district, township, county, or city). Indeed, among those eligible public institutions that offer an associate's degree (i.e., 2-but-less-than-4-year institutions), 29 percent are under some level of local control (table 5), and the majority (69 percent) of less-than-2-year public institutions are under some level of local

Table 2—Number of Title IV eligible postsecondary institutions, by control, offering each level of degree or award: 50 states and the District of Columbia, academic year 1997–98

Level of offering	Total	Public	Private Non-profit	Private For-profit
All institutions	6,808	2,172	2,052	2,584
Less than 1 year	3,267	1,079	333	1,855
One but less than 2 years	3,884	1,504	443	1,937
Associate's degree	2,718	1,358	736	624
Two but less than 4 years	1,298	543	342	413
Bachelor's degree	2,001	592	1,270	139
Postbaccalaureate certificate	543	193	336	14
Master's degree	1,543	522	947	74
Post-master's certificate	416	224	192	0
Doctor's degree	592	244	335	13
First-professional degree	536	148	386	2
First-professional certificate	92	34	58	0
Other	3	0	3	0

NOTE: Details within columns do not add to totals because institutions offer programs at more than one level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

Table 3—Number of Title IV eligible degree-granting postsecondary institutions, by control, offering each level of degree: 50 states and the District of Columbia, academic year 1997–98

Level of offering	Total	Public	Private Non-profit	Private For-profit
All institutions	4,096	1,707	1,720	669
Less than 1 year	1,348	808	250	290
One but less than 2 years	1,840	1,083	334	423
Associate's degree	2,718	1,358	736	624
Two but less than 4 years	619	397	152	70
Bachelor's degree	2,001	592	1,270	139
Postbaccalaureate certificate	491	186	298	7
Master's degree	1,543	522	947	74
Post-master's certificate	412	224	188	0
Doctor's degree	592	244	335	13
First-professional degree	536	148	386	2
First-professional certificate	86	33	53	0
Other	3	0	3	0

NOTE: Details within columns do not add to totals because institutions offer programs at more than one level.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

control (table 4). Eligible non-profit institutions are split pretty evenly among those that are independent (have no religious affiliation) and those that have a religious affiliation (table 4). Among eligible 4-year and higher non-profit institutions, the majority have some religious affiliation, as do the majority of degree-granting eligible non-profit institutions (tables 4 and 5).

The mix of postsecondary institutions by level and control in the states (tables 6 and 7) is quite variable but does not necessarily reflect the distribution of enrollments or resources. For example, in Tennessee about half of all higher education institutions are private 4-year schools, 12 percent are public 4-year schools, and 17 percent are public 2-year schools (derived from table 7). In terms of enrollment, however, 47 percent of all students attending higher education institutions in Tennessee are enrolled in public 4-year institutions, 32 percent are enrolled in public 2-year institutions, and 20 percent are enrolled in private 4-year institutions (Barbett 1998, table B23).

Table 4—Number of Title IV eligible postsecondary institutions, by level and control or affiliation of institution: 50 states and the District of Columbia, academic year 1997–98

Control or affiliation	Total	4 years and above	2 but less than 4 years	Less than 2 years
All institutions	6,808	2,377	2,452	1,979
Public, total[1]	2,172	623	1,238	311
Federal	29	14	14	1
State	1,597	596	862	139
Territorial	0	0	0	0
School district	381	1	203	177
County	203	2	171	30
Township	3	0	2	1
City	36	6	22	8
Special district	154	0	146	8
Other	56	7	41	8
Private, total	4,636	1,754	1,214	1,668
Non-profit	2,052	1,578	371	103
Independent[2]	1,028	673	265	90
Religious affiliation	1,024	905	106	13
Catholic	287	221	59	7
Jewish	72	63	4	5
Protestant	648	607	40	1
Other	17	14	3	0
For-profit	2,584	176	843	1,565

[1] Institutions may indicate more than one level of public control.

[2] No religious affiliation.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

Table 5—Number of Title IV eligible degree-granting postsecondary institutions, by level and control or affiliation of institution: 50 states and the District of Columbia, academic year 1997–98

Control or affiliation	Total	4 years and above	2 but less than 4 years
All institutions	4,096	2,320	1,776
Public, total[1]	1,707	615	1,092
Federal	24	12	12
State	1,371	593	778
Territorial	0	0	0
School district	142	1	141
County	155	1	154
Township	2	0	2
City	21	4	17
Special district	144	0	144
Other	45	7	38
Private, total	2,389	1,705	684
Non-profit	1,720	1,536	184
Independent[2]	777	643	134
Religious affiliation	943	893	50
Catholic	240	216	24
Jewish	65	63	2
Protestant	624	601	23
Other	14	13	1
For-profit	669	169	500

[1] Institutions may indicate more than one level of public control.

[2] No religious affiliation.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

Table 6—Number of Title IV eligible postsecondary institutions, by level and control of institution and by state: Academic year 1997–98

		4 years and above			2 but less than 4 years			Less than 2 years		
			Private			Private			Private	
State or other area	Total	Public	Non-profit	For-profit	Public	Non-profit	For-profit	Public	Non-profit	For-profit
All institutions	6,808	623	1,578	176	1,238	371	843	311	103	1,565
Alabama	93	18	17	3	32	7	5	0	0	11
Alaska	11	3	3	0	1	0	1	1	0	2
Arizona	108	5	11	10	20	4	22	1	2	33
Arkansas	87	10	10	0	24	5	1	7	0	30
California	671	34	148	37	114	25	65	13	28	207
Colorado	98	14	12	14	17	2	16	3	1	19
Connecticut	98	7	19	1	15	6	5	11	0	34
Delaware	14	2	4	0	3	2	0	0	0	3
District of Columbia	27	4	14	3	0	1	0	0	1	4
Florida	278	10	46	19	63	4	46	4	5	81
Georgia	165	20	35	8	55	4	7	1	0	35
Hawaii	25	3	5	2	7	2	2	0	0	4
Idaho	27	4	4	1	3	1	13	0	1	0
Illinois	278	12	87	11	50	17	15	5	7	74
Indiana	142	14	39	2	16	8	24	3	0	36
Iowa	97	3	37	1	17	10	26	0	0	3
Kansas	87	11	21	1	29	3	5	1	1	15
Kentucky	139	8	27	1	35	1	46	15	2	4
Louisiana	140	14	12	1	51	3	10	1	0	48
Maine	45	8	13	0	7	4	6	0	2	5
Maryland	100	16	21	1	20	6	6	0	2	28
Massachusetts	208	15	83	1	19	14	9	8	4	55
Michigan	202	16	59	1	29	11	8	1	3	74
Minnesota	142	12	36	3	48	6	18	0	2	17
Mississippi	67	9	12	0	22	3	11	0	0	10
Missouri	203	14	55	5	25	10	18	33	3	40
Montana	39	6	5	0	12	5	10	0	0	1
Nebraska	59	7	16	0	9	5	18	0	0	4
Nevada	24	2	1	2	4	0	12	0	1	2
New Hampshire	37	5	13	1	4	2	1	0	1	10
New Jersey	158	14	20	0	21	15	10	8	0	70
New Mexico	59	6	8	6	21	1	3	0	0	14
New York	499	44	175	5	49	55	42	32	14	83
North Carolina	162	16	43	0	59	6	3	0	1	34
North Dakota	29	6	4	0	9	1	9	0	0	0
Ohio	315	28	65	2	38	17	81	49	4	31
Oklahoma	137	14	14	0	36	1	4	26	0	42
Oregon	86	8	23	3	17	1	26	0	0	8
Pennsylvania	451	45	110	0	23	55	78	38	7	95
Rhode Island	31	2	9	0	1	1	0	0	0	18
South Carolina	83	12	23	0	22	1	5	0	0	20
South Dakota	30	8	6	4	6	4	2	0	0	0
Tennessee	156	10	43	3	19	7	13	21	0	40
Texas	366	43	54	6	68	7	33	2	2	151
Utah	51	5	2	2	5	1	27	5	0	4
Vermont	29	5	15	1	1	4	1	0	0	2
Virginia	158	15	33	9	25	10	23	8	3	32
Washington	115	9	24	3	33	2	22	1	0	21
West Virginia	74	13	12	0	8	2	17	12	5	5
Wisconsin	95	13	30	3	19	9	14	1	1	5
Wyoming	13	1	0	0	7	0	4	0	0	1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

Table 7—Number of Title IV eligible degree-granting postsecondary institutions, by level and control of institution, and by state: Academic year 1997–98

State or other area	Total	4 years and above			2 but less than 4 years		
			Private			Private	
		Public	Non-profit	For-profit	Public	Non-profit	For-profit
All institutions	4,096	615	1,536	169	1,092	184	500
Alabama	80	18	17	3	32	6	4
Alaska	8	3	3	0	1	0	1
Arizona	70	5	11	9	20	4	21
Arkansas	47	10	10	0	23	3	1
California	400	33	147	36	109	24	51
Colorado	71	14	12	12	15	2	16
Connecticut	43	7	18	1	12	3	2
Delaware	10	2	4	0	3	1	0
District of Columbia	20	4	13	3	0	0	0
Florida	142	10	44	19	28	3	38
Georgia	105	20	33	8	36	4	4
Hawaii	20	3	5	2	7	2	1
Idaho	15	4	4	1	3	1	2
Illinois	173	12	84	11	49	7	10
Indiana	97	14	39	2	14	6	22
Iowa	64	3	36	1	17	2	5
Kansas	60	11	21	0	23	2	3
Kentucky	63	8	26	1	14	1	13
Louisiana	85	14	11	1	49	1	9
Maine	35	8	13	0	7	1	6
Maryland	60	15	21	1	20	2	1
Massachusetts	129	15	82	1	18	8	5
Michigan	111	15	59	1	29	6	1
Minnesota	116	11	35	3	46	3	18
Mississippi	46	9	11	0	22	2	2
Missouri	112	13	54	5	20	5	15
Montana	28	6	5	0	12	3	2
Nebraska	37	7	16	0	9	1	4
Nevada	14	2	1	2	4	0	5
New Hampshire	26	5	13	1	4	2	1
New Jersey	59	14	20	0	19	3	3
New Mexico	45	6	8	6	21	1	3
New York	324	44	167	5	47	29	32
North Carolina	122	16	43	0	58	3	2
North Dakota	23	6	4	0	9	1	3
Ohio	180	28	65	2	36	4	45
Oklahoma	46	14	14	0	16	1	1
Oregon	54	8	23	3	17	1	2
Pennsylvania	258	45	102	0	21	18	72
Rhode Island	12	2	9	0	1	0	0
South Carolina	61	12	23	0	21	1	4
South Dakota	26	8	6	4	6	2	0
Tennessee	84	10	42	2	14	3	13
Texas	195	41	52	5	68	5	24
Utah	21	5	2	2	4	1	7
Vermont	25	5	14	1	1	3	1
Virginia	92	15	31	9	24	1	12
Washington	73	8	24	3	33	1	4
West Virginia	34	13	10	0	4	0	7
Wisconsin	66	13	29	3	19	1	1
Wyoming	9	1	0	0	7	0	1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

In addition to offering postsecondary instructional services to students, many postsecondary institutions provide other types of services to students as well, such as remedial instruction, employment counseling, and even on-campus day care for children of students. The most prevalent of the services listed in tables 8 and 9 is academic and career counseling services (84 percent of all Title IV eligible institutions), followed by placement services for program completers (table 8). More than half (57 percent) of all eligible postsecondary institutions (table 8) and over three-fourths of all higher education institutions (table 9) provide remedial instructional services to their students. Indeed, except for private, for-profit 2- and less-than-2-year institutions, more than half of the eligible institutions in each of the institutional sectors provide remedial instructional services, with 84 percent of public 4-year and over 96 percent of public 2-year institutions leading the way. In general, public 2- and 4-year institutions are more likely to provide each of the services listed in tables 8 and 9 than are other postsecondary institutional sectors.

Table 8—Number and percentage of Title IV eligible postsecondary institutions offering selected student services, by level and control of institution: 50 states and the District of Columbia, academic year 1997–98

		4 years and above			2 but less than 4 years			Less than 2 years		
			Private			Private			Private	
Student services	Total	Public	Non-profit	For-profit	Public	Non-profit	For-profit	Public	Non-profit	For-profit
					Number of institutions					
All institutions	6,808	623	1,578	176	1,238	371	843	311	103	1,565
Remedial instructional services	3,881	523	1,046	106	1,194	201	296	172	55	288
Academic/career counseling services	5,729	609	1,471	144	1,206	316	654	190	73	1,066
Employment services for current students	4,587	563	1,230	126	1,089	204	539	148	57	631
Placement services for program completers	5,416	571	1,212	125	1,071	170	727	173	68	1,299
Assistance for the visually impaired	2,472	523	670	15	987	49	76	73	11	68
Assistance for the hearing impaired	2,467	517	632	21	1,015	52	61	85	9	75
Access for the mobility impaired	4,337	592	1,211	136	1,156	176	413	146	34	473
On-campus day care for children of students	1,351	347	231	4	611	57	27	52	8	14
None of the above	167	5	27	0	2	26	32	7	4	64
					Percent					
All institutions	100	100	100	100	100	100	100	100	100	100
Remedial instructional services	57.0	83.9	66.3	60.2	96.4	54.2	35.1	55.3	53.4	18.4
Academic/career counseling services	84.2	97.8	93.2	81.8	97.4	85.2	77.6	61.1	70.9	68.1
Employment services for current students	67.4	90.4	77.9	71.6	88.0	55.0	63.9	47.6	55.3	40.3
Placement services for program completers	79.6	91.7	76.8	71.0	86.5	45.8	86.2	55.6	66.0	83.0
Assistance for the visually impaired	36.3	83.9	42.5	8.5	79.7	13.2	9.0	23.5	10.7	4.3
Assistance for the hearing impaired	36.2	83.0	40.1	11.9	82.0	14.0	7.2	27.3	8.7	4.8
Access for the mobility impaired	63.7	95.0	76.7	77.3	93.4	47.4	49.0	46.9	33.0	30.2
On-campus day care for children of students	19.8	55.7	14.6	2.3	49.4	15.4	3.2	16.7	7.8	0.9
None of the above	2.5	0.8	1.7	0.0	0.2	7.0	3.8	2.3	3.9	4.1

NOTE: Details within columns do not add to totals because institutions may offer more than one service to students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

Table 9—Number and percentage of Title IV eligible degree-granting postsecondary institutions offering selected student services, by level and control of institution: 50 states and the District of Columbia, academic year 1997–98

		4 years and above			2 but less than 4 years		
			Private			Private	
Student services	Total	Public	Non-profit	For-profit	Public	Non-profit	For-profit
				Number of institutions			
All institutions	4,096	615	1,536	169	1,092	184	500
Remedial instructional services	3,125	523	1,044	106	1,078	137	237
Academic/career counseling services	3,864	606	1,449	139	1,081	171	418
Employment services for current students	3,437	562	1,217	121	994	137	406
Placement services for program completers	3,442	571	1,200	120	960	123	468
Assistance for the visually impaired	2,225	523	668	15	907	43	69
Assistance for the hearing impaired	2,196	517	630	21	931	42	55
Access for the mobility impaired	3,408	590	1,198	131	1,046	124	319
On-campus day care for children of students	1,193	346	229	3	574	18	23
None of the above	31	4	21	0	1	2	3
				Percent			
All institutions	100	100	100	100	100	100	100
Remedial instructional services	76.3	85.0	68.0	62.7	98.7	74.5	47.4
Academic/career counseling services	94.3	98.5	94.3	82.2	99.0	92.9	83.6
Employment services for current students	83.9	91.4	79.2	71.6	91.0	74.5	81.2
Placement services for program completers	84.0	92.8	78.1	71.0	87.9	66.8	93.6
Assistance for the visually impaired	54.3	85.0	43.5	8.9	83.1	23.4	13.8
Assistance for the hearing impaired	53.6	84.1	41.0	12.4	85.3	22.8	11.0
Access for the mobility impaired	83.2	95.9	78.0	77.5	95.8	67.4	63.8
On-campus day care for children of students	29.1	56.3	14.9	1.8	52.6	9.8	4.6
None of the above	0.8	0.7	1.4	0.0	0.1	1.1	0.6

NOTE: Details within columns do not add to totals because institutions may offer more than one service to students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

The median and mean charges of Title IV eligible postsecondary institutions for the 1997–98 academic year are listed in tables 10 and 11. Of all types of eligible degree-granting institutions, public 2-but-less-than-4-year institutions have the lowest tuition and required fees for in-state undergraduate students (table 11). Public 4-year higher education institutions' charges for in-state undergraduate students are about twice as high as those of 2-year publics. Among all 4-year higher education institutions, public 4-year institutions' tuition and required fees charges for in-state undergraduate students are about 25 percent of what 4-year private, non-profit institutions charge and about 37 percent of what 4-year private, for-profits charge. Four-year publics charge out-of-state undergraduate students about 70 percent of what 4-year private, non-profits charge, and they charge about the same as private, for-profit institutions. Public 2-year higher education institutions charge in-state students between 20 and 24 percent of what private higher education 2-year institutions charge, and public 2-year institutions charge their out-of-state students between 55 and 62 percent of what 2-year privates charge (derived from table 11).

Table 10—Average institutional charges (not weighted by enrollment) for tuition and required fees and room and board charges, for full-time, full-year students at Title IV eligible postsecondary institutions, by level and control of institution: 50 states and the District of Columbia, academic year 1997–98

		4 years and above			2 but less than 4 years			Less than 2 years
			Private			Private		
Item	Total	Public	Non-profit	For-profit	Public	Non-profit	For-profit	Public
Undergraduate tuition and required fees (in-state)								
Number of institutions responding	4,036	589	1,232	138	1,141	306	480	150
Mean charges	$6,027	$3,073	$11,239	$8,012	$1,652	$5,938	$7,227	$2,616
Median charges	$4,615	$2,838	$10,995	$7,650	$1,350	$5,913	$6,988	$1,961
Undergraduate tuition and required fees (out-of-state)								
Number of institutions responding	4,036	589	1,232	138	1,141	306	480	150
Mean charges	$7,425	$7,966	$11,257	$8,032	$3,934	$6,094	$7,229	$3,170
Median charges	$6,600	$7,923	$11,000	$7,650	$3,898	$6,000	$6,988	$2,526
Graduate tuition and required fees (in-state)								
Number of institutions responding	1,489	516	893	80	—	—	—	—
Mean charges	$6,833	$3,397	$8,676	$8,410	—	—	—	—
Median charges	$5,562	$3,062	$7,560	$6,610	—	—	—	—
Graduate tuition and required fees (out-of-state)								
Number of institutions responding	1,489	516	893	80	—	—	—	—
Mean charges	$8,393	$7,879	$8,689	$8,410	—	—	—	—
Median charges	$7,518	$7,610	$7,560	$6,610	—	—	—	—
Dormitory facilities								
Number providing facilities	1,711	427	952	16	183	91	42	—
Mean charges	$2,325	$2,241	$2,523	$3,413	$1,380	$1,952	$3,211	—
Median charges	$2,164	$2,106	$2,335	$3,767	$1,250	$1,791	$3,350	—
Meal plan facilities								
Number providing facilities	1,434	393	832	7	151	43	7	1
Mean charges	$2,102	$1,859	$2,322	$1,549	$1,590	$2,028	$1,900	$437
Median charges	$2,100	$1,852	$2,350	$1,410	$1,545	$2,090	$1,564	$437
Mean meals per week	18	18	19	15	17	19	15	12
Median meals per week	19	19	19	17	18	19	15	12

— Not applicable.

NOTE: Undergraduate tuitions represent all responding institutions that offer undergraduate programs and have full-time undergraduate students. Graduate tuitions represent all responding institutions that offer graduate programs and have full-time graduate programs. In-district tuition and required fees are not included. Institutions that report tuitions by program are not included.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

Table 11—Average institutional charges (not weighted by enrollment) for tuition and required fees and room and board charges, for full-time, full-year students at Title IV eligible degree-granting postsecondary institutions, by level and control of institution: 50 states and the District of Columbia, academic year 1997–98

		4 years and above			2 but less than 4 years		
			Private			Private	
Item	Total	Public	Non-profit	For-profit	Public	Non-profit	For-profit
Undergraduate tuition and required fees (in-state)							
Number of institutions responding	3,560	589	1,228	137	1,027	170	409
Mean charges	$6,359	$3,073	$11,259	$8,052	$1,705	$6,974	$7,243
Median charges	$5,000	$2,838	$11,000	$7,650	$1,430	$6,420	$7,021
Undergraduate tuition and required fees (out-of-state)							
Number of institutions responding	3,560	589	1,228	137	1,027	170	409
Mean charges	$7,859	$7,966	$11,277	$8,072	$4,055	$7,085	$7,245
Median charges	$6,960	$7,923	$11,000	$7,650	$4,053	$6,502	$7,021
Graduate tuition and required fees (in-state)							
Number of institutions responding	1,446	510	862	74	—	—	—
Mean charges	$6,943	$3,419	$8,885	$8,612	—	—	—
Median charges	$5,592	$3,091	$7,683	$6,588	—	—	—
Graduate tuition and required fees (out-of-state)							
Number of institutions responding	1,446	510	862	74	—	—	—
Mean charges	$8,544	$7,936	$8,898	$8,612	—	—	—
Median charges	$7,630	$7,629	$7,717	$6,588	—	—	—
Dormitory facilities							
Number providing facilities	1,657	427	944	16	177	53	40
Mean charges	$2,341	$2,241	$2,527	$3,413	$1,385	$2,037	$3,234
Median charges	$2,182	$2,106	$2,340	$3,767	$1,254	$1,890	$3,350
Meal plan facilities							
Number providing facilities	1,422	393	830	7	148	37	7
Mean charges	$2,104	$1,859	$2,321	$1,549	$1,588	$2,045	$1,900
Median charges	$2,105	$1,852	$2,349	$1,410	$1,548	$2,126	$1,564
Mean meals per week	18	18	19	15	17	19	15
Median meals per week	19	19	19	17	18	19	15

— Not applicable.

NOTE: Undergraduate tuitions represent all responding institutions that offer undergraduate programs and have full-time undergraduate students. Graduate tuitions represent all responding institutions that offer graduate programs and have full-time graduate programs. In-district tuition and required fees are not included. Institutions that report tuitions by program are not included.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

Reference

Barbett, S. (1998). *Fall Enrollment in Postsecondary Institutions, 1996* (NCES 1999–239). U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

Data source: The Integrated Postsecondary Education Data System (IPEDS), "Institutional Characteristics Survey" (IC), 1997–98.

For technical information, see the complete report:

Korb, R.A., and Lin, A.F. (1999). *Postsecondary Institutions in the United States: 1997–98* (NCES 1999–174).

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To obtain the complete report (NCES 1999–174), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

CROSSCUTTING STATISTICS

Annual Earnings of Young Adults, by Educational Attainment
from The Condition of Education: 1998 81

The Condition of Education: 1999
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Annual Earnings of Young Adults, by Educational Attainment

his article was originally published as an Indicator of the Month, taken from The Condition of Education: 1998. *The sample survey data re from the March Current Population Survey (CPS), conducted by the U.S. Census Bureau.*

Wages and salaries are influenced by many factors, including the employer's perception of the productivity and availability of workers with different levels of education and the economic conditions in the industries that typically employ workers with different levels of education. Annual earnings are influenced by the number of weeks worked in a year and the usual hours worked each week. The ratio of annual earnings of high school dropouts or college graduates to the annual earnings of high school completers is affected by all of these factors: it is a measure of the earnings disadvantage of not finishing high school and the earnings advantage of completing college.

- In 1996, the median annual earnings of young adults ages 25–34 who had not completed high school were substantially lower than those of their counterparts who had completed high school (31 and 36 percent

Ratio of median annual earnings of wage and salary workers ages 25–34 whose highest education level was grades 9–11, some college, and a bachelor's degree or higher to those with a high school diploma or GED, by sex: 1970–96

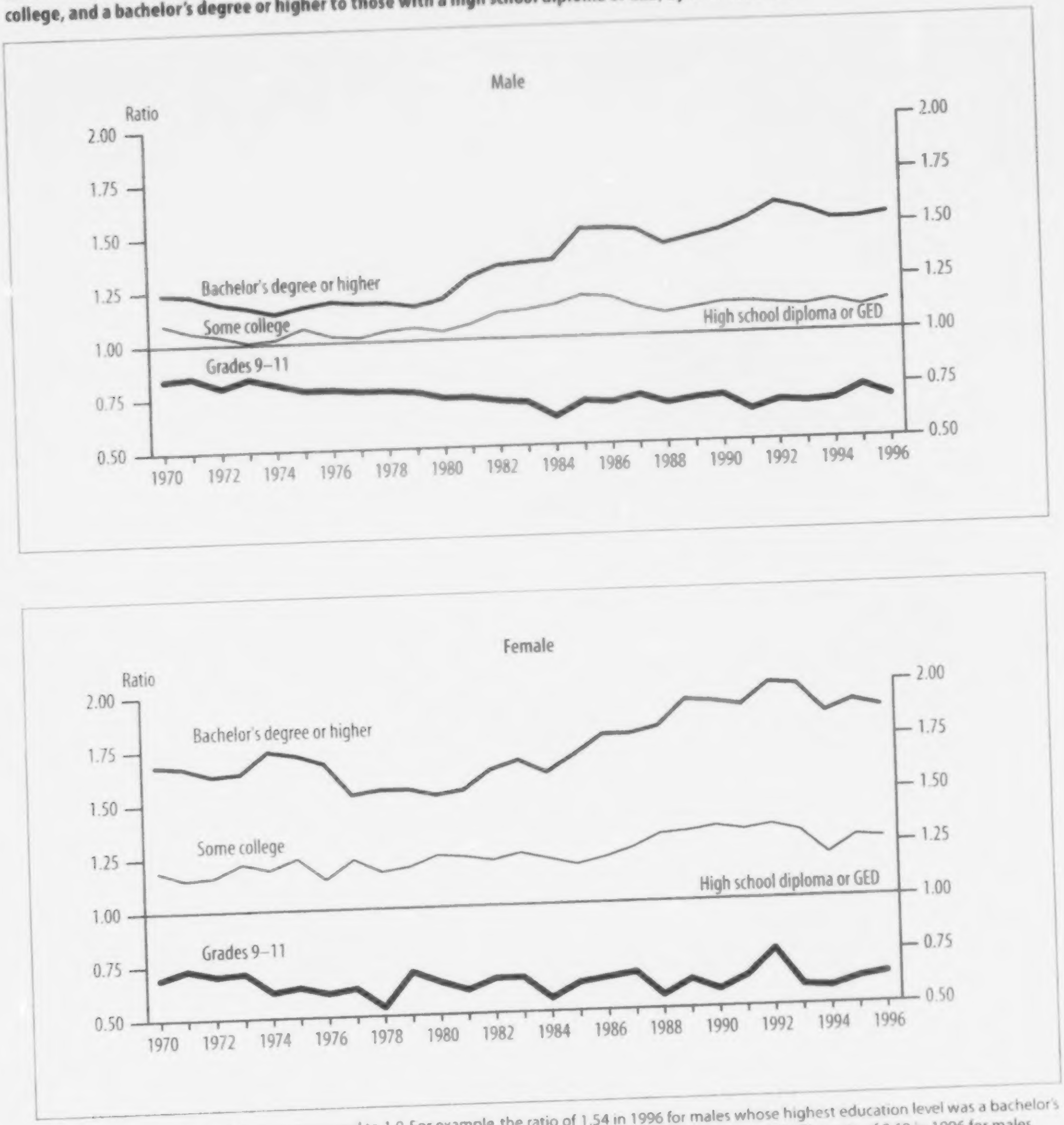
	Grades 9–11		Some college		Bachelor's degree or higher	
Year	Male	Female	Male	Female	Male	Female
1970	0.84	0.69	1.10	1.19	1.24	1.68
1972	0.80	0.70	1.04	1.16	1.19	1.63
1974	0.81	0.62	1.02	1.19	1.14	1.74
1976	0.78	0.61	1.03	1.14	1.19	1.58
1978	0.77	0.54	1.05	1.17	1.18	1.55
1980	0.73	0.65	1.04	1.24	1.19	1.52
1982	0.71	0.66	1.12	1.21	1.34	1.63
1984	0.63	0.56	1.15	1.21	1.36	1.61
1986	0.69	0.65	1.18	1.21	1.50	1.78
1988	0.68	0.56	1.10	1.31	1.42	1.81
1990	0.71	0.58	1.14	1.34	1.48	1.92
1991	0.64	0.64	1.14	1.32	1.53	1.90
1992	0.68	0.76	1.13	1.34	1.60	2.00
1993	0.67	0.59	1.12	1.31	1.57	1.99
1994	0.68	0.58	1.14	1.20	1.52	1.86
1995	0.74	0.62	1.11	1.28	1.52	1.91
1996	0.69	0.64	1.14	1.27	1.54	1.88

NOTE: This ratio is most useful when compared to 1.0. For example, the ratio of 1.54 in 1996 for males whose highest education level was a bachelor's degree or higher means that they earned 54 percent more than males who had a high school diploma or GED. The ratio of 0.69 in 1996 for males whose highest education level was grades 9–11 means that they earned 31 percent less than males who had a high school diploma or GED.

The Current Population Survey (CPS) questions used to obtain educational attainment data were changed in 1992.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March (various years).

Ratio of median annual earnings of wage and salary workers ages 25–34 whose highest education level was grades 9–11, some college, and a bachelor's degree or higher to those with a high school diploma or GED, by sex: 1970–96



NOTE: This ratio is most useful when compared to 1.0. For example, the ratio of 1.54 in 1996 for males whose highest education level was a bachelor's degree or higher means that they earned 54 percent more than males who had a high school diploma or GED. The ratio of 0.69 in 1996 for males whose highest education level was grades 9-11 means that they earned 31 percent less than males who had a high school diploma or GED.

The Current Population Survey (CPS) questions used to obtain educational attainment data were changed in 1992.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March (various years).

lower for males and females, respectively). Young adults who had completed a bachelor's degree or higher earned substantially more than those who had earned no more than a high school diploma or GED (54 and 88 percent more for males and females, respectively).

- Between 1980 and 1996, the earnings advantage of obtaining a bachelor's degree or higher increased for males, rising from 19 to 54 percent.
- Since 1980, the earnings advantage of 25- to 34-year-olds with some college or a bachelor's degree or higher (relative to their counterparts who had completed high school) was generally greater for females than for males.

Data source: The U.S. Census Bureau's Current Population Survey (CPS), March (various years).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education: 1998* (NCES 98-013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1998 (http://nces.ed.gov/pubs98/condition98/index.html)*, or
- volume 2 of the printed version (1999): *The Condition of Education: 1998 Supplemental and Standard Error Tables* (NCES 1999-025).

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To obtain this Indicator of the Month (NCES 1999-009), call the toll-free ED Pubs number (877-433-7827) or visit the NCES Web Site *(http://nces.ed.gov)*.

The Condition of Education: 1999

This article was excerpted from the Commissioner's Statement and the Overview from the Compendium of the same name. The universe and sample survey data are from various studies carried out by NCES, as well as surveys conducted elsewhere, both within and outside of the federal government.

The Condition of Education is an annual report to Congress that focuses on 60 indicators. These indicators represent a consensus of professional judgment on the most significant national measures of the condition and progress of education at this time, but are tempered necessarily by the availability of current and valid information. Unlike most other statistics, an indicator is policy relevant and problem oriented; it usually incorporates a standard against which to judge progress or regression. Indicators cannot, however, identify causes or solutions and should not be used to draw conclusions without other evidence.

In addition to a basic core of indicators that can be repeated with updated information on a yearly or cyclical basis, each edition of the *Condition* contains a more limited set of indicators based on infrequent or special studies. This year's edition contains 22 new indicators, which are integrated throughout the report.

In this year's edition of the *Condition*, the individual indicators are preceded by a 25-page essay providing an overview of key information from the indicators. The purpose of this essay is to create links between the numerous topics discussed in this report and construct a comprehensive statistical picture of the condition of education. Like the indicators themselves, the overview essay is organized by topic into five major sections. The essay's introduction and conclusions provide additional context for the topical discussions.

Introduction

Providing a quality education for all students is widely viewed as crucial to the future success of the nation. In *A Nation at Risk* (1983), the National Commission on Excellence in Education warned of a "rising tide of mediocrity" in elementary and secondary education in the United States and made a series of recommendations to improve its quality. These recommendations stimulated a school reform movement that continues to expand and evolve. In recent years, international comparisons have shown U.S. students lagging behind those in many other developed nations. The concerns raised by the Commission, coupled with these new studies, have kept improving the quality of education high on the national agenda.

Postsecondary education has not been the target of the same types of reform efforts as elementary and secondary education. However, the demands of changing technologies and maintaining a competitive position in the global economy are making postsecondary education increasingly important to individuals and society, and have led to federal and state policies designed to encourage participation in higher education. Consequently, issues related to access, attainment, affordability, and the quality of instruction are the focus of ongoing attention.

The following sections provide highlights of some of the evidence presented in the current and recent editions of the *Condition* on the progress that has been made in recent years in providing a quality education for all students and the problems that still exist. Although the evidence shows progress in improving the quality of education for all students in some areas, it also highlights areas in which further improvements are needed.

I. Learner Outcomes

Examining learner outcomes can shed light on the quality of education. Outcomes include levels of student achievement and adult literacy, as well as economic consequences of educational attainment.

Academic performance

A first step in assessing the progress that has been made in improving the education of all students is to compare the academic performance of students today with that of students in the past. Data from the National Assessment of Educational Progress (NAEP) provide a common yardstick for making such comparisons at the state and national levels. The news is mixed.

- Between 1973 and 1996, mathematics performance improved overall, with stability or early declines followed by improved performance.

- Little change occurred in the long-term trends in students' reading performance between 1971 and 1996.
- In science, long-term achievement fell between 1970 and the early 1980s but then rose through 1996.

Racial/ethnic differences in student performance

Between the early 1970s and the mid- to late 1980s, the performance scores of black students improved relative to those of white students in reading, mathematics, and science at all ages (9, 13, and 17). Since then, these differences in performance between blacks and whites have either widened again or remained the same.

International comparisons

A different perspective on student performance can be gained from the assessments of science and mathematics conducted in 1995 by the Third International Mathematics and Science Study (TIMSS). In both mathematics and science, U.S. students scored above the international averages in grade 4, close to the international averages in grade 8, and considerably below the averages at the end of secondary school.

Adult literacy

The knowledge and skills measured by student achievement tests are part of the larger educational goal of helping students become literate. The literacy skills developed in schools and colleges are intended to equip individuals for life in the modern world and provide them with the ability to earn a living and contribute to the welfare of society. Results from the 1992 National Adult Literacy Survey (NALS) indicate that adults in the population with more education have higher literacy skills that remain high across age groups.

Economic outcomes

Education has a long-term effect on personal income. At least one reason for completing more education is to enter higher paying occupations and careers than are available to those with less education. Increases over time in the rates of employment and earnings for individuals with more education signal growing demand in the economy for these better educated people relative to their supply.

- Since 1971, the differences in the employment rates of those with more and less education have generally increased for both males and females.
- The difference between the earnings of 25- to 34-year-olds with a bachelor's degree or more and the earnings of their peers who have completed high school has increased for both males and females since 1980.

II. Quality of Educational Environments (Elementary/Secondary)

Early approaches to school reform that followed publication of *A Nation at Risk* called for longer school days and years, more testing, more rigorous academic programs in high school, stricter certification requirements for teachers, higher salaries for teachers, and upgraded technology. More recently, reform efforts have shifted in emphasis from school inputs to what occurs in the classroom—in terms of curriculum, instructional practices, and methods of student assessment—and also how to prepare teachers to address the new demands being placed upon them.

Course taking and standards

One recommendation in *A Nation at Risk* was that all high school students seeking a diploma be required to take a "New Basics" core curriculum consisting of 4 years of English and 3 years each of social studies, science, and mathematics.* Since this recommendation was made, changes have occurred in course-taking patterns.

- High school students are taking more courses in core subject areas than previously taken.
- High school students are taking more difficult courses.

Instructional practices

Recent reform efforts have called on teachers to adopt new goals for the classroom, change how they interact with students, and learn how to use new tools for learning and assessment (e.g., National Commission on Teaching and America's Future 1996).

- The majority of teachers report engaging their students in activities designed to promote higher level thinking skills.
- The majority of teachers report requiring students to participate actively in class.
- The majority of public elementary school teachers are using portfolios.

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*The "New Basics" curriculum also includes half a year of computer science. Two years of a foreign language are strongly recommended for college-bound students.

Access to technology

The rapid growth in the use of new technologies in the workplace and society has put pressure on schools to acquire computers, software, and Internet access and on teachers to integrate this technology into their classroom activities.

- Access to the Internet in the schools has grown dramatically.
- Student use of computers is increasing at school and at home.

Teacher preparedness

As new instructional practices and technologies make their way into the classroom, they are requiring fundamental changes in how teachers work and prepare themselves to teach. Helping teachers to meet these new demands has become a major focus of school reform efforts.

- Some students are being taught core academic subjects by teachers who are not certified to teach those subjects, but certification requirements have increased. Between 1990–91 and 1993–94, the increase was mainly in requirements for passing basic literacy or subject matter knowledge tests.
- Many teachers do not consider themselves very well prepared to handle some of the new demands being placed on them, but they are more likely to feel prepared after they have participated in related professional development activities.
- Teachers report that regular participation in collaborative activities improves their teaching.

III. Quality of Educational Environments (Postsecondary)

The quality of undergraduate education has received considerable attention in recent years, with concerns raised about the quality of curriculum, faculty, and teaching methods. National data on these topics are limited, but data are available to describe several important issues.

- The majority of postsecondary education institutions offer remedial courses.
- Exposure to senior faculty was about the same across all types of 4-year colleges and universities in 1992, and did not change appreciably between fall 1987 and fall 1992.
- A majority of instructional faculty and staff at 2-year institutions are part time.
- Full-time faculty spent proportionately less time on teaching-related activities but more hours in the classroom in 1992 than in 1987.

IV. Social Support for Learning

The support that families and society at large provide for learning significantly affects the quality of educational opportunities available to children and postsecondary students and, thus, contributes to their ultimate success. Investments of both time and financial resources are important.

Family support

Parents are their children's first teachers. Even when children are very young, parents can assume a key role in preparing them for formal schooling by helping them to develop language and other skills and by enrolling them in early childhood programs. Once children enter school, their parents can continue to support learning by participating in school activities and helping with homework. In addition to participating directly in school- and learning-related activities with their children, parents and other family members sometimes support their children's education financially through tuition payments.

- Many parents report that their young children are engaging in early literacy activities.
- Many children are enrolled in early childhood programs.
- Most parents report attending meetings and events at their children's schools and helping with homework.
- Fathers' participation has a positive effect on children's success in school.
- The proportion of students enrolled in private education varies greatly across the preschool, elementary/secondary, and postsecondary levels.

Public financial support

There are a number of ways to assess public support for education. One way, for example, is to compare per student expenditures (adjusted for inflation) over time. Another is to examine the amount of funds raised per student for education relative to per capita income over time. Yet another is to compare the United States with other countries in terms of the share of national resources devoted to education.

- Per pupil expenditures for elementary/secondary education have increased slightly in recent years.
- At the higher education level, total per student expenditures are increasing, but not government appropriations.
- Financial aid to students helps to offset the cost of postsecondary education.
- According to one measure of effort (revenues per student divided by per capita income for the total population), public financial support has generally increased over time for elementary and secondary education and has remained stable since the early 1980s for higher education.
- The United States devotes more of its public resources to education than most G-7 countries.

V. Educational Participation and Progress

Students' participation in and rates of progress through the educational system and their educational attainments are important aspects of the condition of education.

Enrollment growth

In the aftermath of baby boom generation enrollment, total enrollments in elementary and secondary education declined during the 1970s through the early 1980s. Enrollments began to rise again as the children of baby boom parents began to enter the education system in large numbers. In addition to changes in total enrollments due to these population shifts, there have also been changes in rates of enrollment at all levels of formal education.

- Total enrollments in both elementary and secondary education have increased since the early 1980s to all-time highs.
- Since 1970, the largest increase in educational enrollment rates has been among those ages 3–5.
- Since 1970, the largest increase in postsecondary education enrollment rates has been among traditionally aged college students (19- to 24-year-olds) rather than among older individuals.

High school dropouts and completions

Those who complete high school are more likely to be employed as young adults than noncompleters. Furthermore, the differences in employment rates and earnings between these two groups have been growing over the last 2 decades. These recent trends confirm the longstanding belief of parents and educators that completing high school is important.

More students may also be realizing the importance of completing high school. The high school completion rate of 25- to 29-year-olds has risen overall since 1971, with most of the gains occurring in the 1970s through the early 1980s.

International comparisons

In recent years, other large, industrialized countries have invested heavily in the expansion of secondary schooling. As a result, secondary school completion rates are rising in other large, industrialized countries such that they are essentially catching up to the rates of the United States.

Transition to college

After completing high school, the next educational transition for students is often entering college. Youth decide to enter college depending upon their life goals and the environment of expectations and opportunities in which they have grown up.

- The percentage of high school completers who enroll in college immediately after completing high school has risen since 1981, but not by as much for blacks and Hispanics as for whites.
- Students from different racial/ethnic and family income backgrounds who are academically well prepared for college and who take the steps necessary to enroll are accepted and subsequently enroll at about the same rates.

College completion

A subsequent benchmark for gauging students' progress through the education system is the attainment of a bachelor's degree. Attainment of this degree represents a distinctly higher level of education than the completion of high school and opens doors to careers that are closed to those with less education.

The percentage of the population ages 25–29 who have completed a bachelor's degree has generally increased since the early 1970s; however, since the early 1980s, the completion rate for whites has been rising faster than the rates for blacks and Hispanics.

Conclusions

Since the early 1980s, some progress has been made in improving education in the United States, but the directions of change are mixed. Reform efforts are more widespread in elementary and secondary education than in higher education, but many are concerned about issues of the cost, accessibility, and quality of higher education.

Student performance on the NAEP long-term trend assessments has improved since the early 1980s in mathematics and science, but not in reading. In addition, student performance on the main NAEP assessments has shown some improvements in mathematics and reading at some grade levels and no declines. At least two-thirds of 31 states participating in these mathematics assessments also showed improvements in student proficiency scores, and none had declining scores. In contrast, little change has occurred since the early 1970s in reading.

Although student performance on the NAEP mathematics and science assessments has improved in recent years, students do not fare as well internationally on the TIMSS assessments at the 12th-grade, or upper secondary, level as they do at the 4th-grade level. This low standing of U.S. high school students, coupled with the recent expansion of secondary schooling in other large, industrialized countries, informs the debate over improving the quality of secondary education as a particularly important goal of education reform.

Since the early 1980s, students have been taking more courses in core academic subjects in accordance with the recommendations of *A Nation at Risk*. The difficulty of these courses has increased as well. Student use of computers at home and at school has increased, and access to the Internet has expanded dramatically. Still, low- and middle-income students are far more likely to use a computer at school than at home.

At the college level, the literacy scores of college completers are higher than the scores of those with some college, and higher still than the literacy scores of high school completers. Internationally, the literacy scores of U.S. college graduates were exceeded by those in only one other country that participated in the 1994–95 International Adult Literacy Study (IALS) assessment.

Improving the quality of elementary and secondary education so that students learn more requires changes in methods of teaching and learning. Elementary and secondary teachers report using new methods of instruction intended to develop higher order thinking skills and capabilities for using knowledge, but many do not feel well prepared to put these new methods to use in their classrooms. However, teachers who have participated in professional development activities related to these new techniques, including collaboration with other teachers, feel better prepared.

At the postsecondary level, many are concerned about the quality of undergraduate education, but national data on change are limited. Undergraduate students are exposed to senior faculty in at least half of their courses, a proportion that is similar across all types of 4-year institutions. Full-time faculty are spending more time in the classroom teaching students and less time on related activities such as grading papers, preparing for class, or advising students.

More than half of postsecondary institutions of all types offer remedial courses, and nearly a third of college freshmen are required to enroll in at least one of them. These courses are intended to help students improve their mathematics, writing, or reading skills to at least the minimums required for college work. The extent of remediation in higher education raises further questions about the quality of secondary education.

Since the early 1970s, some progress has been made in closing the black-white gaps in student academic achievement in elementary and secondary schooling; however, the proficiency scores of blacks still remain behind those of whites. Most of the gains occurred between the early 1970s and mid- to late 1980s, largely preceding the academic reform movement. Since the mid- to late 1980s, the gaps between the achievement scores of blacks and whites have either stayed the same or widened some. The differences between Hispanic and white achievement have not narrowed to the same extent as they have for blacks.

Black rates of high school completion have risen more than those of whites since the early 1970s, closing the gap between the black and white rates significantly. Most of this improvement occurred before the late 1980s. Because

Hispanic rates of high school completion have not risen faster than those of whites, the gap between the rates remains the same.

Black and Hispanic rates of college enrollment have risen since the early 1980s, but not as fast as those for whites. Furthermore, the rates of attaining a bachelor's degree have increased faster among young white adults than among their black and Hispanic peers over the same period. Consequently, the gaps in higher education attainment between whites and Hispanics and between whites and blacks have grown.

Improving the quality of education for all students requires the support of parents and society at large. The investments of time and money these individuals make in education can significantly affect the quality of educational opportunities available to children in elementary and secondary education and to students when they enter higher education.

The education levels of parents contribute to their support of their children's education, and these levels are increasing. Parental education levels have increased and will continue to do so if the percentages of the population who complete college continue to increase. The children of parents who are college educated are more likely to read to their children, and these children are, in turn, more likely to attend college.

In 1995, the United States spent 3.5 percent of its gross national product (GNP) on elementary/secondary education, and 1.1 percent on higher education. Among large, industrialized countries, only Canada spent higher proportions of its GNP on education. At the elementary/secondary level, the index of total institutional revenues per student divided by per capita income has generally increased over time, but it decreased slightly between 1994 and 1995. The national index for higher education was considerably higher in 1970 than it was in 1996 but has been relatively stable in recent years.

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For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1999 (http://nces.ed.gov/pubs99/condition99/index.html)*, or
- volume 2 of the printed version (forthcoming): *The Condition of Education: 1999 Supplemental and Standard Error Tables* (NCES 2000–016).

For questions about content, contact John Wirt *(john_wirt@ed.gov)*.

To obtain the complete report (NCES 1999–022), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

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The NAEP 1996 Technical Report

Nancy L. Allen, James E. Carlson, and Christine A. Zelenak

This article was excerpted from the Introduction to the technical report of the same name. The report describes the design and data analysis procedures of the 1996 National Assessment of Educational Progress (NAEP).

Introduction

The 1996 National Assessment of Educational Progress (NAEP) monitored the performance of students in American schools in the subject areas of reading, mathematics, science, and writing. The purpose of this technical report is to provide details on the instrument development, sample design, data collection, and data analysis procedures of the 1996 national assessment. Detailed substantive results are not presented here but can be found in a series of NAEP reports on the status of and trends in student performance; several other reports provide additional information on how the assessment was designed and implemented.

The national sample involved nearly 124,000 public and nonpublic school students who were 9, 13, or 17 years old or in grades 4, 8, or 12. Additional samples of approximately 125,000 fourth- and 125,000 eighth-graders in 48 jurisdictions were assessed in the 1996 state assessment in mathematics. Also, a sample of approximately 125,000 fourth-graders in 47 states and jurisdictions was assessed as part of the 1996 state assessment in science. A representative sample of about 2,500 students was selected in each jurisdiction for each subject at each grade level. The state-level sampling plan allowed for cross-state comparisons and comparisons with the nation in fourth-grade science and fourth- and eighth-grade mathematics achievement. Technical details of the state assessments are not presented in this technical report but can be found in the state technical reports.

An Overview of NAEP in 1996

For the 1996 assessment, NAEP researchers continued to build on the original design technology outlined in *NAEP Reconsidered: A New Design for a New Era* (Messick, Beaton, and Lord 1983). In order to maintain its links to the past and still implement innovations in measurement technology, NAEP continued its multistage sampling approach. Long-term trend and main assessment (short-term trend) samples use the same methodology and population definitions as in previous assessments. Main assessment samples use innovations associated with new NAEP technology and address current educational issues. Long-term trend data are used to estimate changes in performance from previous assessments; main assessment sample data are used primarily for analyses involving the current student population, but also to estimate short-term trends for a small number of recent assessments. In continuing to use this two-tiered approach, NAEP reaffirms its commitment to maintaining long-term trends while at the same time implementing the latest in measurement technology.

A major new design feature was introduced for 1996 to permit the introduction of new inclusion rules for students with disabilities (SD) and limited English proficient (LEP) students, and the introduction of testing accommodations for those students. The 1996 national NAEP incorporated a multiple sampling plan that allowed for studies of the effects of these changes in NAEP inclusion and accommodation procedures. Under this sampling plan, students from different samples were administered the NAEP instruments using different sets of inclusion rules and accommodation procedures. In certain samples, testing accommodations were provided for SD and LEP students who could be assessed, but not with standard instruments or administration procedures.

In the 1996 assessment, many of the innovations that were implemented for the first time in 1988 were continued and enhanced. For example, a variant of the focused balanced incomplete block (focused-BIB) booklet design, which was used in 1988 and has continued to be used in other assessment years, was used in the 1996 main assessment samples in mathematics and science. In the focused-BIB design, an individual receives blocks of cognitive items in the same subject area. The focused-BIB design allows for improved estimation within a particular subject area, and estimation continues to be optimized for groups rather than individuals.

In 1996, NAEP continued to apply the plausible values approach to estimating means for demographic as well as curriculum-related subgroups. Proficiency estimates were based on draws from a posterior distribution that was based on an optimum weighting of two sets of information: students' responses to cognitive items and students' demographic and associated educational process variables. This Bayesian procedure was developed by Mislevy (see chapter 11 of the complete report or Mislevy 1991). The 1996 procedures continued to use an improvement that was implemented first in 1988 and refined for the 1994 assessment. This is a multivariate procedure that uses information from all scales within a given subject area in the estimation of the proficiency distribution on any one scale in that subject area.

A major improvement used in the 1992 and 1994 assessments, and continued in 1996, was the use of the generalized partial credit model for item response theory (IRT) scaling. This allowed the incorporation of constructed-response questions that are scored on a multipoint rating scale into the NAEP scale in a way that utilizes the information available in each response category.

One important innovation in reporting the 1990 assessment data that was continued through 1996 was the use of simultaneous comparison procedures in carrying out significance tests for the differences across assessment years. Methods such as the Bonferroni allow one to control for the type I error rate for a fixed number of comparisons. In 1996, more powerful new procedures that control for the false discovery rate were implemented for some comparisons. Tests for linear and quadratic trends were also applied to the national trend data in reading, mathematics, science, and writing.

Organization of the Technical Report

Part I of this report describes the design of the 1996 National Assessment, beginning with a summary. Individual chapters then present in more detail the development of the objectives and the items used in the assessment, the sample selection procedures, the assessment booklets and questionnaires, the administration of the assessment in the field, the processing of the data from the assessment instruments into computer-readable form, the professional scoring of constructed-response items, and the methods used to create a complete NAEP database.

The 1996 NAEP data analysis procedures are described in Part II of the report. Following a summary of the analysis steps, individual chapters provide a general discussion of the weighting and variance estimation procedures used in NAEP, an overview of NAEP scaling methodology, and details of the trend and main assessment analyses performed for each subject area in the 1996 assessment. Basic data from the 1996 assessment, including the properties of the measuring instruments and characteristics of the sample, are also presented.

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To obtain the complete report (NCES 1999–452), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

Baccalaureate and Beyond Longitudinal Study: 1993/97 Second Follow-up Methodology Report

Patricia Green, Sharon Myers, Cynthia Veldman, and Steven Pedlow

This article was excerpted from the technical report of the same name. The sample survey data are from the Second Follow-up to the Baccalaureate and Beyond Longitudinal Study (B&B).

Introduction

The Baccalaureate and Beyond Longitudinal Study (B&B) tracks the experiences of a cohort of college graduates who received their baccalaureate degree during the 1992–93 academic year and were first interviewed in 1993 as part of the National Postsecondary Student Aid Study (NPSAS:93). This group's experiences in the areas of academic enrollments, degree completions, employment, public service, and other adult decisions will be followed for about 12 years, in a series of four follow-up interviews.

Schedule and purpose of the B&B interviews

The first follow-up interview (B&B:93/94) collected information from respondents in 1994, 1 year after they received their bachelor's degrees. This report concerns the second follow-up interview (B&B:93/97), which collected data 4 years after bachelor's degree receipt. The next interview is planned for 9 years after graduation. By the time of the final interview, most students who attend graduate or professional schools should have completed, or nearly completed, their education and be established in their careers.

The B&B study provides data to address issues in four major areas of education policy: outcomes of postsecondary attainment; access to graduate and professional schools; rates of return on investment in a bachelor's degree; and patterns of preparation for, and engagement in, teaching. With its wealth of data on the consequences of postsecondary education, B&B will contribute to the study of education as a lifelong process.

Content of this report

This report documents B&B:93/97 methodology, examining sample design, instrument development and data collection, response rates, efficacy of the survey instrument, and weights and design effects. Also included in the report are reference materials such as letters and other information sent to members of the B&B:93/97 sample; a list of variables for B&B:93/97; and the survey instruments for NPSAS:93, B&B:93/94, and B&B:93/97.

Sample Design

The B&B sample design represents all postsecondary students in the United States who completed a bachelor's degree in academic year 1992–93. The B&B sample is a subsample of the students selected for the NPSAS:93 sample, a nationally representative sample of all postsecondary students.[1]

Sample for the first follow-up

The B&B:93/94 sample included those students in the NPSAS:93 sample who were identified either by the institution or during the student interview as having completed a bachelor's degree in the 1992–93 academic year (July 1, 1992, through June 30, 1993). In addition to retaining all 11,180 of the 1992–93 baccalaureate recipients who completed the NPSAS:93 interview, B&B:93/94 also retained subsamples of nonrespondents and of remaining eligible cases for which at least some data were available.[2] Altogether, the B&B:93/94 sample included 12,478 cases.

Sample for the second follow-up

After B&B:93/94 data collection was complete, additional cases in the initial follow-up sample were found to be ineligible for B&B (Green et al. 1996). People were retained for follow-up in later rounds of the study if they were eligible either according to the student interview (10,080 people) or according to transcripts (an additional 1,094 people). Also included were 18 cases for which eligibility remained unknown in both the interview and the transcripts. Altogether, therefore, 11,192 cases were retained for future rounds, including B&B:93/97. During B&B:93/97 data collection, 30 of these cases were found to be either out of scope (29 cases) or ineligible (1 case), reducing the number of eligible cases to 11,162.[3]

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[1] NPSAS:93 employed a stratified two-stage sample design with postsecondary institutions as the first-stage unit and students within schools as the second stage. For details on the NPSAS:93 sample design, see Loft et al. (1995).

[2] For details on the B&B:93/94 sample design, see Green et al. (1996).

[3] The 29 out-of-scope cases were sample members who had died since 1993; 1 case was identified as ineligible when it was determined that the respondent had never received a baccalaureate degree.

Instrument Development

A modified version of the B&B:93/94 instrument was shortened and revised based on results of the B&B:93/97 field test, input from the 23-member Technical Review Panel, and additional review and testing.

Revision of questionnaire items

Items were dropped mainly for lack of reliability or usefulness. Topics for descriptive reports were identified and then used as a guide to determine which questionnaire items could be dropped and which should be retained, revised, or clarified. Most of the items excluded from the second follow-up main study instrument were from the demographic section (e.g., questions about high school grades, income of other household members, and access to computers).

The most extensively revised portion of the instrument was the teaching section. A new definition of what constitutes the "teacher pipeline" was used to redesign the initial filter questions for this section. Another important revision was moving the teaching section to precede the employment section, so that data about teaching jobs were collected before data about other (nonteaching) jobs. The intended effect was to reduce respondent burden from the first follow-up, when data were first collected about all jobs and then again about teaching jobs.

Incorporation of online coding systems

The B&B:93/97 instrument was designed to use five online coding systems developed by the National Center for Education Statistics (NCES). These coding systems enabled interviewers to code responses during the interview; they also guided interviewers' probes of any unclear or incomplete answers. These systems were used to code (1) occupation, (2) industry, (3) major field of study, (4) postsecondary schools attended, and (5) for teachers, the elementary and secondary schools where they taught.

Data Collection

In the spring of 1997, an advance mailing containing a letter and informational leaflet was sent to all 11,192 of the B&B:93/97 sample members. Data collection for the second follow-up began in early April, approximately 1 week after the advance mailing, and continued through December of 1997. Respondents were interviewed using one of two computer-assisted interviewing (CAI) systems. The majority of interviews were conducted by telephone interviewers located at a central facility using a computer-assisted telephone interviewing (CATI) system. These interviews were completed between April and July of 1997. The remaining cases were completed by field interviewers using a computer-assisted personal interviewing (CAPI) and case management system (CMS) that was loaded into their individual laptop computers. Most of these interviews were also conducted by telephone, but some were administered in person. These cases were completed between July and December of 1997.

Interviewer preparation and quality control

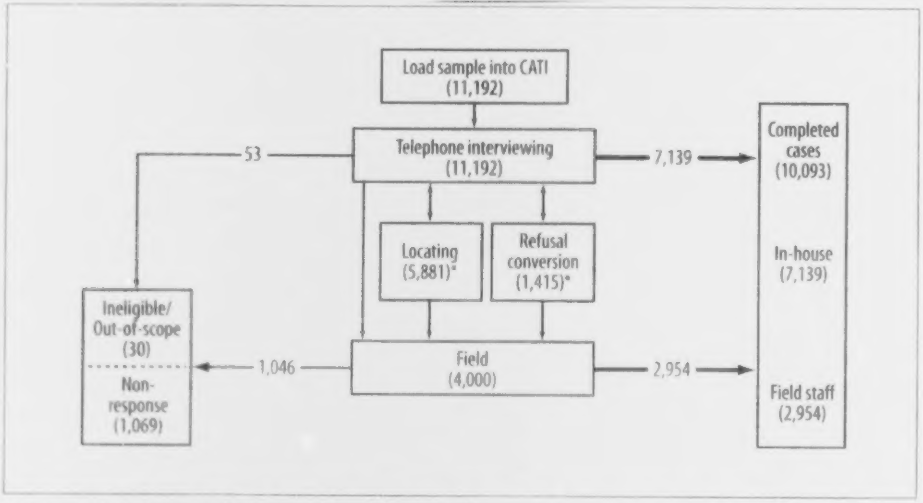
Following a training period, all interviewers completed a mock interview with a supervisor or field manager, who ensured that they were ready to begin working their cases. To ensure data quality, the following procedures were used throughout the data collection phase: monitoring CATI (telephone facility) interviews on a random basis; checking the quality of CAPI (field) interviews by recontacting and briefly questioning a random selection of respondents; recoding a sample of entries from each of the five online coding programs; producing and reviewing production statistics for both CATI and CAPI interviewers on a daily basis; and reviewing item frequencies as well as "time stamps" that show the amount of time taken to complete each section of the interview.

CATI production

As shown in figure A, all case records for the sample were loaded into the CATI telephone number management system (TNMS), which automatically delivered the cases to interviewers, tracked progress on all cases, and categorized each case based on the outcome of the previous telephone call. Over a period of 16 weeks, approximately 100 telephone center interviewers completed a total of 7,139 cases (63.9 percent of the 11,162 eligible cases).

The number of calls per completed case is the best indicator of the level of effort required in the interviewing task. The number of CATI calls made to complete a case averaged 18.5 for the B&B:93/97 sample, compared to an average of 13.4 CATI calls for the B&B:93/94 sample. These data indicate that a much higher level of effort was required to complete cases in 1997. This was largely due to the much higher number of locating problems encountered (interviewers were much less likely to locate sample members at their preloaded phone numbers or still residing with their parents) and also reflects the busier lifestyles of the majority of sample members, who may have more career and family responsibilities than they had 3 years ago.

Figure A—Paths toward case completion



*Cases could be designated as locating or refusal problems, or both.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97). (Originally published as figure 4.1 on p. 14 of the complete report from which this article is excerpted.)

CAPI operations

After interviewing at the telephone center was halted, all pending cases were transferred to field staff working in different regions of the United States. In addition to 58 telephone field interviewers, a total of 112 in-person field interviewers were hired as needed for locally based assistance in locating respondents or contacting respondents in person.

A total of 4,000 cases (35.8 percent of the total sample) were sent to the field (figure A). All were cases that the telephone center had been unable to complete because the respondent refused, was evasive, or had not yet been located. Locating problems were the most significant deterrent to field production. About halfway through the field interviewing period, therefore, field staff were reconfigured into task-specific groups, which were able to handle the problems encountered more efficiently. Over a period of 23 weeks, field interviewers completed a total of 2,954 cases (73.8 percent of cases that were sent to the field and 26.5 percent of all eligible cases).

Respondent locating

The B&B:93/97 field test experience was that more than half, rather than the expected third, of sample members had required locating. Prior to data collection, therefore, all cases were sent to a credit bureau database service to obtain updated phone and address information for each sample member. Cases for whom no phone number was available, either through this process or from an earlier interview, and cases whose updated phone number was subsequently identified as being incorrect, were sent to locating specialists. As figure A indicates, 5,881 cases (53 percent of the initial sample) required this intensive locating while in the telephone center. About half of these cases were eventually completed in the telephone center; the other half were sent to the field, where 429 additional locating problem cases were identified.

Despite the large number of cases with locating problems, efforts to locate sample members proved very successful: only 2.7 percent of cases with locating problems (only 1.5 percent of all cases) were never located. Interviews were eventually completed with 86 percent of cases that had ever been identified as having locating problems. However, the refusal rate for cases with locating problems was twice as high as for cases without such problems, suggesting that some locating problems were actually hidden refusals.

Refusal conversion

Although sample members' refusal to participate in the study presented less of a problem in the second follow-up than in the first follow-up, conversion remained difficult. Fifteen percent (1,679) of eligible sample members refused to participate at some time during the second follow-up, compared to 20 percent during B&B:93/94. The majority of these cases (1,415) were first identified as refusals in the telephone center. CATI refusal conversion specialists were able to complete interviews with about one-quarter of these sample members; three-quarters of these cases (1,050) had to be sent to the field, where interviewers could contact sample members in person if necessary. Field interviewers were able to convert an additional 782 reluctant sample members, producing a final response rate of 67 percent among those who had ever refused to participate.

Response Rates

Interviews were completed with 10,093 of the 11,162 eligible B&B:93/97 cases, for a final unweighted response weight of 90.4 percent (table A). Just 1.5 percent of the sample were finalized as unlocatable, while only 2.6 percent of the sample were finalized as refusals. Much of the remaining 5.5 percent nonresponse is attributable to sample members who were either out of the country or not available at any time during the time frame of this follow-up.

Among sample members who had refused to participate at some point in the production period, the response rate was lower in 1997 than in 1994 (67 percent versus 74 percent). This might seem to suggest that the hard-to-persuade are becoming more intransigent; however, only 39 B&B:93/97 sample members have been nonrespondents to all three waves of data collection (NPSAS:93, B&B:93/94, and B&B:93/97). For B&B:93/97, in fact, successful interviews were completed with 501 sample members who had been nonrespondents in the first follow-up and 351 sample members who had been nonrespondents in NPSAS:93. The 2.6 percent rate of final refusal in B&B:93/97 compares favorably to the 5.8 percent refusal rate in B&B:93/94.

The B&B panel

For the second follow-up, more interviews were completed than in the first follow-up, despite the fact that 23 of the first follow-up respondents had since died. Table B shows the full response patterns for all 11,192 B&B sample members. This table describes each type of response combination to the three survey rounds (starting with NPSAS:93) and provides frequencies for each description. As shown, a full 83 percent of the sample responded to all three rounds; these 9,274 respondents are classified as the B&B panel.

Table A—Response rates, by mode of interview

B&B:93/97 sample		Phone	Field	Total
Total		7,192	4,000	11,192
Ineligible		23	7	30
Eligible		64.2%	35.8%	100.0%
		7,169	3,993	11,162
Complete	(percent)	63.9%	26.5%	90.4%
	(number)	7,139	2,954	10,093
Final refusal	(percent)	0.3%	2.3%	2.6%
	(number)	30	257	287
Unlocated	(percent)	0.0%	1.5%	1.5%
	(number)	0	168	168
Other non-response	(percent)	0.0%	5.5%	5.5%
	(number)	0	614	614

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97). (Originally published as table 5.1 on p. 28 of the complete report from which this article is excerpted.)

Table B—Response patterns for B&B sample

	Response status, by study				
Description	NPSAS:93	B&B:93/94	B&B:93/97	Frequency	Percent
Total	—	—	—	11,192	100.0
Respondents to all three rounds	Yes	Yes	Yes	9,274	82.9
NPSAS:93 and B&B:93/94 only	Yes	Yes	No	436	3.9
NPSAS:93 and B&B:93/97 only	Yes	No	Yes	468	4.2
B&B:93/94 and B&B:93/97 only	No	Yes	Yes	318	2.8
NPSAS:93 only	Yes	No	No	565	5.0
B&B:93/94 only	No	Yes	No	29	0.3
B&B:93/97 only	No	No	Yes	33	0.3
B&B:93/97 deceased* (B&B:93/94 respondents)	Yes	Yes	—	23	0.2
B&B:93/97 deceased* (B&B:93/94 nonrespondents)	Yes	No	—	7	0.1
Nonrespondents to all three rounds	No	No	No	39	0.3

— Not applicable.

*B&B:93/97 discovered 29 deceased eligibles and one ineligible previously undiscovered.

NOTE: Due to rounding, details may not add up to 100 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Baccalaureate and Beyond Longitudinal Study: 1993/94 First Follow-up Methodology Report* (NCES 96-149); and 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-up (B&B:93/97). (Originally published as table 2.2 on p. 7 of the complete report from which this article is excerpted.)

Response rates by demographic group

While response rates are similar across many demographic subgroups, some distinctive differences exist. Response rates decrease slightly with age (93.1 percent of those under 26 compared to 90.4 percent of those over 30 participated), but participation among males and females is approximately equal. Response rates are also similar among whites, blacks, and American Indians (ranging from 89.5 percent to 91.6 percent) but are substantially lower for Asian/Pacific Islanders (only 82.2 percent) and those identifying themselves as "other" (73.8 percent).

Efficacy of Instrument

One can look at several factors in assessing the efficacy of the survey instrument. This report discusses the interview length, the accuracy of interviewer coding when using online coding utilities, and the level of individual item nonresponse.

Interview length

The average length of a completed interview for B&B:93/97 was almost 33 minutes (only 1 minute longer than the average administration time in the first follow-up). Not counting the locating section, which gathered address and telephone numbers for the respondent, parents, and other contacts, the average interviewing time was almost 28 minutes.

When looking at administration time by section, clearly the longest section was the one that collected data about employment since the last interview date, with an average time of 11.5 minutes. The next highest administration time (7.5 minutes) was for the final section—which collected demographic, civic participation, household, and debt information—but this is partially due to the fact that this section was the longest in terms of number of questions. A little over 6 minutes were spent collecting information about postbaccalaureate education and internships, and an average of about 2 minutes were spent gathering data on respondents' teaching experiences.

Online coding accuracy

Interviewers did a fairly good job in using the five online coding programs, and differences in coding accuracy between programs are relatively small. Three of the programs—used to code major field of study, industry, and occupation—required interviewers first to enter brief "verbatim" text supplied by the respondent and then to select from several possible codes suggested by the program.

Ten percent of each week's cases were recoded by specially trained coders, who selected a code based on the verbatim text entered by the interviewer. In cases where the verbatim text was sufficient to allow verification, the percentage of incorrect codes selected by the original interviewers ranged from 5.5 percent (for major field of study) to 2.7 and 2.6 percent (for industry and occupation).

Two of the online coding programs—for postsecondary institutions and elementary/secondary schools—involved searching through a multilevel database of states, cities within states, and finally, schools within the selected city. Expert coders examined only those cases where the interviewer entered text because the school could not be found in the coding program. In these cases, the expert coders were asked to judge whether the text entered was sufficiently complete to allow the school to be coded later. About 94 percent of interviewers provided sufficient information to allow coding of postsecondary institutions, while only 76 percent provided that level of information for elementary/secondary schools. It was discovered, however, that respondents had failed to provide the names of 18 percent of the inadequately documented elementary/secondary schools. In a significant portion of the remaining uncodable cases, moreover, the interviewer had not been able to select a city.

Item nonresponse

One of the goals of B&B:93/97 was to reduce item nonresponse, which results from respondents either refusing to answer a question or responding that they are unable to provide an accurate answer. This goal was accomplished by building respondent rapport through a variety of innovative techniques, such as conversational interviewing.

Although the number of items with significant rates of nonresponse was reduced in the second follow-up, some items were still answered by less than 90 percent of the respondents who were asked. Of the approximately 1,800 questions in the final data set, almost 50 had nonresponse rates over 10 percent. Almost half of these questions were asked of only five or fewer respondents, however, and many were the third or fourth iterations of a looped question.

As in the first follow-up (and similar surveys), refusal to answer income and salary questions accounted for a significant proportion of the nonresponse items. Nonetheless, the rate of refusal of such questions was lower than in the first follow-up. Items requiring specific dates—such as those for emigration, employment, and school attendance—continued to have a high rate of "don't know" responses, as did items about spouse or partner income or debt.

Weights and Design Effects

B&B:93/97 final weights were calculated by making a nonresponse adjustment to the baseline B&B weight calculated for B&B:93/94. This baseline B&B weight, in turn, was an adjustment of the baseline NPSAS:93 weight.[4]

Design effects

The design effect is defined as the ratio of the variance corrected for the sampling design to the variance based on a simple random sample (SRS). Most complex multistage sampling designs result in a design effect greater than 1; that is, the variance of an estimate is actually larger than the variance would be had the data been based on an SRS. For B&B:93/97, the Taylor Series procedure was used to calculate the standard errors.

Standard errors for 30 variables based on B&B:93/97 data were calculated, both for B&B:93/97 respondents and for B&B panel respondents (respondents to all three surveys: NPSAS:93, B&B:93/94, and B&B:93/97). The design effects for these variables were calculated for the entire population and estimated for subgroups by sex, race, and type of school attended. In addition, design effects for the B&B panel, B&B:93/94, and B&B:93/97 were compared for the overall population as well as subgroups. The panel respondents tend to have the lowest design effects, while the mean design effects tend to be highest for B&B:93/94. These are only slight differences, however, since the three sets of design effects are very similar.

Researchers who use the Data Analysis System prepared for use with B&B:93/97 will find that the program automatically produces design-corrected standard errors. Researchers using the restricted-use files are cautioned either to use a package (such as SUDAAN or OSIRIS) that can produce the design-corrected standard errors or to adjust the standard errors computed under SRS assumptions (as produced by typical packages such as SPSS or SAS) by multiplying them by the mean root design effect for that subgroup.[5]

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[4] Documentation of NPSAS:93 sample development and weights calculation can be found in Whitmore, Traccarella, and Iannacchione (1995), while details on the development of weights for B&B:93/94 can be found in Green et al. (1996).

[5] For tables of design effects and standard errors, see the complete report.

Nonresponse bias

To assess whether there are differences between groups in the frequency of refusing to answer particular questions, a subset of variables used in the examination of design effects was used in a nonresponse bias analysis. The analysis was conducted based on gender, date of interview, and race/ethnicity. No significant differences are evident based on gender; that is, males and females have approximately equal levels of missing data on the items included in this analysis.

Significant differences based on date of interview are present for 21 of the 25 variables examined. Cases completed during the April–June period when most of the CATI data collection took place have lower levels of missing data than cases completed during the July–December CAPI field period. While it is possible that this represents a mode effect, it seems likely that it is the result of the fact that difficult cases were completed during the CAPI field period, including respondents who had refused to complete an interview over the phone.

The analysis based on race and ethnicity shows some small level of nonresponse bias. In conducting *t*-tests between the percent valid and percent missing among white respondents, 13 of the 25 comparisons are significant. For all of these items, whites had high levels of valid data in comparison to missing data. Missing responses seem to be distributed more heavily among nonwhite than white cases.

In conclusion, the overall level of nonresponse is very low in this data file. The response bias noted here is not sufficiently grave to have a major impact on most analysis. However, it is important to note so that improvements can be made for the next round of data collection.

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Author affiliations: P. Green, S. Myers, C. Veldman, and S. Pedlow, National Opinion Research Center (NORC) at the University of Chicago.

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To obtain the complete report (NCES 1999–159), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Evaluation of the NCES State Library Agencies Survey: An Examination of Duplication and Definitions in the Fiscal Section

Laura Riley Aneckstein

This article was excerpted from the foreword and chapter 1 of the technical report of the same name. The universe data are from the NCES State Library Agencies (STLA) Survey and the Office of Library Programs (OLP) Financial and Performance Report.

Introduction

This report was prepared for the National Center of Education Statistics (NCES) by the Governments Division of the U.S. Bureau of the Census. The report documents an evaluation that focused on the fiscal section of the NCES State Library Agencies (STLA) Survey,[1] Parts K, L, and M. The evaluation had two objectives: (1) to check for duplication of data collection between the survey and the compliance materials of the Office of Library Programs (OLP), a former agency of the U.S. Department of Education; and (2) to analyze selected definitions.

Background for Part I: Duplication of Data Collection

Part I of this evaluation compares fiscal year (FY) 1995 data collected by the NCES survey with those collected by OLP, to determine whether OLP's Annual Financial and Performance Reports collected any of the data in items 154–163 or 190–200 of the NCES survey. The STLA Survey Steering Committee and NCES authorized this duplication analysis to address issues raised in an Office of Management and Budget memorandum written in 1994 (OMB No. 1850–0705). The memorandum had expressed concern that NCES and OLP may have been collecting the same data on Library Services and Construction Act (LSCA) funds,[2] thereby creating an excessive reporting burden for state library agencies (STLAs).

At the time this study began, Steering Committee and NCES officials were aware that to some extent there was an overlap in the collection of financial data between NCES and OLP. At the same time, they were aware that the two agencies collected the data in different groupings and that the data were collected according to different reporting periods. The duplication analysis was authorized to determine to what extent these and other differences prevented duplication and whether the differences were avoidable.

Part I of this study analyzes STLA data from FY 1995 only, for two reasons. First, because the forms used by each agency were essentially the same from FY 1994, when the survey began, through FY 1996, it was not necessary to scrutinize the data from all three years. Second, it was preferable to examine the most recent data possible, and at the time Part I began, the 1996 data were not yet complete.

The evaluation consulted the following reference sources for information about the survey and OLP materials: statutory and regulatory material, blank data collection instrument forms, instructions for form completion, actual respondent data, and phone interviews with selected respondents.

To understand this report, it is necessary to become familiar with the data collection objectives and methods of each agency. Because the main objective of each agency was different, the collection methods and data differed. A brief explanation of objectives and methods follows.

The NCES survey

NCES publishes *State Library Agencies* (a publication tabulating and summarizing the NCES STLA survey) each year for STLA administrators, state legislators, and other policymakers. The purpose of the survey is to provide state and federal agency policymakers with information about STLAs. The data collected are useful to (1) the Chief Officers of State Library Agencies; (2) policymakers in the executive and legislative branches of federal and state governments; (3) government and library administrators at federal, state, and local levels; (4) the American Library Association and its members or customers; and (5) library and public policy researchers. The survey asks each STLA about the kinds of services it provides, its staffing practices, its collections, income and expenditure data, and more. Decisionmakers use the NCES survey to obtain information about services and fiscal practices.

The NCES survey is conducted by the U.S. Census Bureau, under contract with NCES. The survey instrument is contained in a software program into which each STLA enters its responses electronically. The STLA may receive the program either on floppy disk or by e-mail. After completing the survey, the STLA sends it back to the data collection unit.

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[1] Throughout this report, the term "NCES survey" refers to the NCES STLA Survey.

[2] LSCA is the federal law that formerly governed the creation and funding of programs for library development.

Office of Library Programs (OLP)

Until federal FY 1998, OLP was an agency within the Department of Education that funded the programs authorized by Titles I through III of the Library Services and Construction Act (LSCA).[3] OLP solicited grant applications from the STLAs, determined the amount to be awarded to each, dispersed the funds, and monitored the programs administered by the STLAs and their subgrantees. When the Library Services and Technology Act of 1996 (LSTA) passed, it ordered that all federal library programs be transferred to the new Institute of Museum and Library Services (IMLS) after FY 1997.

Unlike NCES, OLP did not compile data for publication and use by STLAs and other policymakers. Rather, OLP collected the LSCA information in order to evaluate the extent to which each STLA was adhering to the LSCA grant program regulations. The divergent objectives of the agencies have caused them to collect different data. NCES uses a broad focus, and collects information on many different aspects of STLA operation, only one of which is financial statistics. OLP had a much narrower scope, concentrating on each grant project and whether the related funds were expended properly.

Background for Part II: Definitional Analysis of Income and Expenditures Items

Since the first NCES STLA Survey was conducted (FY 1994), some of the financial data (collected in Parts K, L, and M of the survey) returned by the respondents have been inconsistent and problematic. The Steering Committee and NCES requested this part of the evaluation in order to determine the causes of the anomalous data, and to revise the definitions for the affected items.

The ensuing study relied on the survey forms, instructions, and the respondent survey manuals; actual respondent data from survey years 1994–96; and phone interviews with 28 respondents.

While the phone interviews collected some important information, they also revealed an underlying problem: the respondents are too busy to spend much time completing the survey. As such, the respondents sometimes do not double-check the data they provide for obvious errors; they do not always investigate further if they do not understand a question or item definition; and they are often unable to explain why their data appear internally inconsistent.

Those conditions made Part II a difficult prospect. Often, during phone interviews, the respondents were uncertain about why equations were out of balance. When this occurred, it became necessary to use circumstantial evidence to draw conclusions about the data. In other words, the evaluation analyzed the respondent's data reporting pattern over 3 years to piece together the respondent's interpretations of the survey items. The necessity of relying on circumstantial evidence affected the strength of some of the findings. However, those findings, together with a close examination of Parts K, L, and M, did allow for a revision of the relevant questions, definitions, and notes.

The wording of suggested revisions took into account the fact that the Library Services and Construction Act (LSCA) will not be relevant to the FY 1998 survey. Instead, the Library Services and Technology Act (LSTA) will control the federal grants to STLAs. While it remains unknown exactly how STLA data will be collected under the LSTA regime, it is possible that the Institute of Museum and Library Services (IMLS) will collect fundamentally the same fiscal information as did OLP. Hence, the fiscal parts of the NCES survey may remain largely unaffected by the transfer of regimes.

The suggested definitional modifications were constructed with this in mind. Minor editing was done where required, to reflect the evolution from LSCA to LSTA. References to "LSCA" were changed to "LSTA," and references to Titles I, II, and III were changed to "Section 231(a) [20 U.S.C. § 9141(a)] of the Library Services and Technology Act," the subsection that reflects the Act's two main focuses.

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[3] LSCA contained eight titles, each focusing on a particular area of concern to libraries and the public they serve. The most prominent of these were Titles I through III, which accounted for over 96 percent of LSCA funds.

Recommendations

Because the data being collected by the NCES survey may be fundamentally similar to those that will be collected by the new Institute of Museum and Library Services (IMLS), Part I of this evaluation suggested that the Steering Committee might wish to consult with IMLS regarding the possibility of coordinating data collection in future years.

Because some STLAs were confused about how to measure income and how to classify expenditures, Part II suggested that the Steering Committee address these problems by making several changes and additions to survey questions, definitions, and notes. Details of these suggested revisions can be found in the complete report.

Data source: Parts K, L, and M of the NCES State Library Agencies (STLA) Survey, 1994, 1995, and 1996; and expenditures data from the Office of Library Programs (OLP) Financial and Performance Report, 1995.

For technical information, see the complete report:

Aneckstein, L.R. (1999). *Evaluation of the NCES State Library Agencies Survey* (NCES 1999–312).

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To obtain the complete report (NCES 1999–312), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

Coverage Evaluation of Academic Libraries Survey (ALS)

Christopher C. Marston

This article was excerpted from the Introduction and the Summary of Findings and Recommendations in the technical report of the same name. The report evaluates the "Academic Libraries Survey" (ALS), part of the NCES Integrated Postsecondary Education Data System (IPEDS).

Introduction

Academic libraries are education resources that play a key role in the transfer of knowledge and information. Data on these important resources are provided by the "Academic Libraries Survey" (ALS), one component of the Integrated Postsecondary Education Data System (IPEDS). ALS collects data on the libraries in the entire universe of accredited higher education institutions and on the libraries in nonaccredited institutions with a program of 4 years or more. The survey provides policymakers and researchers with information on trends in total operating expenditures devoted to academic libraries, on services available to students, and on the adoption of new technologies, such as electronic access to bibliographic information. In addition, ALS provides information on the staffing of academic libraries.

Objectives Covered in This Evaluation

This evaluation was conducted for the National Center for Education Statistics (NCES) by the Governments Division of the U.S. Census Bureau. It utilizes five distinct categories to evaluate ALS coverage: (1) policy, (2) survey design and data elements, (3) universe of participants, (4) coordinator interviews, and (5) public versus private institution reporting.

Policy is examined in terms of National Performance Review guidelines for "Best Practices" in government research and the importance of this survey in the complex environment associated with our National Information Infrastructure. Second, survey design is assessed to evaluate what kind of data are covered by ALS and how they measure up to professional standards set by the American Library Association (ALA) and other notable academic library research groups. Third, universe coverage is evaluated by comparing the list of IPEDS universe units to other lists applicable to academic library research. Sources for comparison were selected based on the professional respect that they command in the library field. Fourth, at the request of NCES, the evaluation examines the opinions of survey coordinators regarding instrument design and data covered by ALS. Finally, taking coverage a step further, private versus public institution reporting is examined.

Overview of Findings and Recommendations

Revisions are making the survey questions easier for respondents to understand.

Instrument revisions are consistent with national performance objectives established by the Office of Management and Budget and the National Performance Review. As a result, IPEDS is creating a more efficient and effective instrument for data collection. By incorporating a reader-focused environment, erroneous reporting should be decreased, and editing (data cleaning) time should theoretically be reduced as well. Therefore, coverage quality should be increased or maintained based on policy and survey design initiatives currently in place.

Earlier release of data might encourage more non–Title IV institutions to participate.

Due to the size of the ALS universe, data gathering is extremely tedious and complex. Only those institutions that receive federal funding through Title IV student financial aid programs[1] are required to respond to the survey. Regardless of the presence or absence of federal funding, institution response is initiated within a self-paced environment. Electronic software and Web technologies are helping to reduce the time it takes for the institution to respond to ALS. As a mutual support mechanism to alleviate the timeliness issue, an early release policy for the data is envisioned. It is possible that, by reducing the time necessary for data collection, data dissemination could occur at an earlier date as well. If achieved, efficient reporting could directly affect the timeliness issue associated with data dissemination as well. Institutions that have the option of participating in ALS might elect to do so in light of these changes.

Field coordinators should answer a brief questionnaire when submitting the data.

Field coordinators collect ALS data from the institutions in their regions, then submit these data either by using IDEALS electronic reporting software or by returning the actual survey forms filled out by the institutions. Field coordinators are an excellent resource to assess the quality of institution coverage and instrument design. This evaluation proposes that a short questionnaire be included in the IDEALS software to assess this valuable resource for longitudinal and cross-sectional evaluation of ALS. By utilizing their firsthand experience, library representatives could help NCES maintain or increase the quality of data coverage and collection at the regional level.

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[1] Title IV of the Higher Education Act of 1965 authorizes programs such as Pell Grants, Stafford Loans, and the College Work Study Program.

Universe coverage is generally excellent, but data on branch campuses and professional schools could be improved.

The quality of institutional coverage remains excellent when compared to other institutional listings directly related to the academic libraries industry. Seven reputable listing types were compared:

Data type	Universe assembled by
Branches	*American Library Directory (ALD)* (1997–98, Volume 1)
Library Science Programs	*American Library Directory (ALD)* (1997–98, Volume 2)
	American Library Association (Accredited Library Science Programs, as listed in *ALD*, Volume 2)
Associations	Association of Research Libraries
	The Oberlin Group
World Wide Web Access	University of Florida's Web Listing of Colleges and Universities
Archives, Special Collections, and Archival Education Programs	U.S. Government Printing Office Web Listing of Federal Depositions
	University of Idaho/Abraham's Listing of Special Collections
	The Society of American Archivists
Professional School Libraries	American Bar Association List of Approved Law Schools
General	Peterson's Guides

Findings suggest that the ALS universe is superior (coverage gap of 1 to 3 percent in only two of the listings).[2] Regardless of this finding, future studies are needed to assess whether or not the data collected by ALS fully account for branch data associated with parent institution resources. The only resource that could come close to assessing this quality would be branch data compiled from the *American Library Directory* (1997).

A problem currently plaguing ALS data is uncertainty as to the presence or absence of professional school statistics in parent college or university data. Branch comparison could be valuable in light of this problem as well. In an effort to clarify parent institution reporting, the instrument could include questions indicating whether or not professional school resources are present or absent in aggregate institution statistics, a method already utilized by two professional academic library research associations, the Association of College and Research Libraries (ACRL) and the Association of Research Libraries (ARL).

Nonresponse by Title IV institutions could be reduced by enforcing mandatory participation.

Finally, based on the findings from the segment observation in this study (public versus private reporting), the most problematic institutional types associated with reporting would include the private, nonprofit, higher education, 4-year institutions (primarily of a religious affiliation). It is anticipated that the problem of nonresponse by Title IV institutions would be reduced if mechanisms to enforce participation were put into place nationally. The question remains: Where does ALS proceed from here?

ALS should continue to change its questions to cover newly emerging technologies.

Based on field coordinator response, ALS should continue to change along with the industry. Data coverage is a key factor in the assessment of institutional, regional, and national academic library resources. Without measuring current trends in procurement and management of resources, appropriations cannot be made to enhance resources and facilities that already exist.

Data on libraries at non-degree-granting institutions would probably be useful to policymakers.

Should resource statistics that do not pertain to "higher education institutions" in IPEDS data coverage be included in ALS reporting? Specifically, should library data for less-than-2-year institutions[3] (primarily vocational and trade schools) be reported along with academic library data? It is already known that by definition these institutions fail outside the defined ALS universe (1998) of participants. Given trends in nontraditional education, for public officials to adequately assess library resources covered in a community or region, it might be necessary to include nontraditional library elements within the comprehensive sphere of resources available to areas and communities. Paralleling this argument, ALS field coordinators indicated in the national survey interview conducted as a part of this evaluation that vocational and nonacademic library resources do represent significant library resources in the United States.[4] If the amount of data on these resources would be increased by coverage of nonacademic institutions, then this expanded coverage would further the U.S. Department of Education goal of identifying as many of the nation's education resources as possible.

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[2] Of the 2,723 institutions listed in volume 1 of the *American Library Directory* (1997), 93 institutions were not covered in the IPEDS universe, representing a gap of about 3 percent. Of the 1,167 institutions in the University of Florida's Web listing, only 12 institutions (1 percent) were not covered by IPEDS.

[3] Under the IPEDS classification of postsecondary institutions, these are the institutions in sectors 7, 8, and 9.

Summary

Findings suggest that the data collected through ALS represent a high-quality product when compared to other surveys within the same field of study. Regardless of the problems with ALS outlined in this evaluation, it is the most comprehensive data source for academic libraries data of its kind in the United States. No other public or private association provides a more complete listing of resources offered by public and private colleges and universities. Because ALS data are functional in terms of policy assessment and resource allocation (funding), accurate statistics will provide for a more informed approach to planning and funding for academic libraries in the United States. Survey refinement and timely dissemination of ALS data will not only provide current statistics for the policymakers, but also provide a means for institutions to assess their own resources at the national, regional, and sector levels.

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[4] Although coordinators felt that nontraditional library data coverage is important, descriptive statistics should be reported separately so as not to skew the data for higher education institutions.

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For technical information, see the complete report:

Marston, C.C. (1999). *Coverage Evaluation of Academic Libraries Survey (ALS)* (NCES 1999–330).

For additional details on survey methodology, see

Cahalan, M.W., and Justh, N.M. (1998). *The Status of Academic Libraries in the United States: Results From the 1994 Academic Library Survey With Historical Comparisons* (NCES 98–311).

Author affiliation: C.C. Marston, U.S. Bureau of the Census.

For questions about content, contact Jeffrey Williams (*jeffrey_williams@ed.gov*).

To obtain the complete report (NCES 1999–330), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Federal Interagency Collaborative Activities

America's Children: Key National Indicators of Well-Being: 1999
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America's Children: Key National Indicators of Well-Being: 1999

Federal Interagency Forum on Child and Family Statistics

This article was originally published as the Highlights and Summary List of Indicators from the report of the same name, prepared by the Federal Interagency Forum on Child and Family Statistics. Made up of 18 federal agencies, including NCES, the Forum fosters interagency coordination and collaboration in the collection and reporting of federal data on children and families. Forum agencies are listed at the end of this article, along with the report's numerous data sources.

America's Children: Key National Indicators of Well-Being: 1999 is the third annual report to the nation on the condition of our most precious resource, our children. Included are six contextual measures that describe the changing population and family context in which children are living and 23 indicators of well-being in the areas of economic security, health, behavior and social environment, and education. This year's report includes as a special feature an indicator on Children Who Have Difficulty Performing Everyday Activities.

Part I: Population and Family Characteristics

- America's children continue to grow in racial and ethnic diversity. In 1998, 65 percent were white, non-Hispanic; 15 percent were black, non-Hispanic; 15 percent were Hispanic; 4 percent were Asian/Pacific Islander; and 1 percent were American Indian/Alaska Native. Hispanic children slightly outnumber black, non-Hispanic children.
- The percentage of children living with two parents declined from 77 percent in 1980 to 68 percent in 1996, and has remained stable since then. There are large differences across racial and ethnic groups, however. In 1998, 76 percent of white, non-Hispanic children lived with two parents, compared to 36 percent of black children and 64 percent of Hispanic children.
- The percentage of births that are to unmarried women has stabilized since 1994 at about 32 percent, after rising sharply from 18 percent in 1980.

Part II: Indicators of Children's Well-Being

Economic security indicators

- The poverty rate of children was 19 percent in 1997, about the same as it has been since 1980. The proportion of children living in families with high income increased from 17 percent in 1980 to 25 percent in 1997, while the proportion of children living in extreme poverty grew slightly, from 7 to 8 percent, over the same period. These shifts reflect a growing income disparity among children.
- The percentage of children living with their parents who had at least one parent working full time all year

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increased 5 percentage points, to 76 percent, from 1993 to 1997. A large share of this increase was due to the increase in the percentage of children living with employed single mothers, which increased from 33 percent in 1993 to 41 percent in 1997.

- Most American children and adolescents had a diet that was poor or needed improvement in 1996. As children get older, the quality of their diet declines: 24 percent of 2- to 5-year-olds had a good diet, compared with only 6 percent of teenagers ages 13 to 18.
- Teenagers are also less likely than younger children to have a usual source of medical care. In 1996, 8 percent of all adolescents ages 12 to 17 lacked a usual source of care. Over 27 percent of uninsured adolescents in this age group lacked a usual source of care.

Health indicators

- The percentage of infants born with low birthweight (weighing less than about 5.5 pounds) continues to rise. In 1997, this percentage was the highest in over 20 years, at 7.5 percent. The increase in low birthweight is partly due to the rising number of twin and other multiple births.
- The percentage of children in families living in poverty who have received the combined series of vaccines increased between 1996 and 1997, from 69 to 71 percent.
- While the mortality rate for almost all groups of children continues to fall, it has fallen most dramatically among black children ages 1 to 4, from 67.6 per 1,000 in 1996 to 59.2 in 1997, according to preliminary data. This rate, however, remains almost twice the rate for whites, at 31.5 per 1,000 according to 1997 preliminary data.
- Death rates among adolescents, particularly among black males, have dropped dramatically after rising rapidly during the early 1990s. In 1996, the adolescent firearm mortality rate was at the lowest point since 1989 for both blacks and whites. The rate among black males dropped from 120.3 per 100,000 in 1995 to 108.7 in 1996, and the rate among white males dropped from 27.9 per 100,000 in 1995 to 23.1 in 1996.
- The birth rate for teenagers ages 15 to 17 dropped from 1991 to 1997, after rising during the late 1980s. In 1997, the rate was 32.1 live births per 1,000 females ages 15 to 17, down from 38.7 in 1991.

Behavior and social environment indicators

- The percentage of 10th- and 12th-grade students who reported smoking daily dropped in 1998 after generally increasing since 1992. Among 10th-graders, the percentage dropped from 18 percent in 1997 to 16 percent in 1998, and among 12th-graders it dropped from its recent high of 25 percent in 1997 to 22 percent in 1998. This rate is still high compared to previous years, however.
- Youth ages 12 to 17 were victims of serious violent crime at the rate of 27 crimes per 1,000 in 1997, down from 44 per 1,000 in 1993. Juveniles were identified as perpetrators of serious violent crimes at the rate of 31 crimes per 1,000 in 1997, down from 52 per 1,000 in 1993.

Education indicators

- A higher percentage of children were enrolled in preschool in 1997 than in 1996—48 percent compared to 45 percent. Preschool enrollment particularly increased among black, non-Hispanic children, from 45 to 55 percent, and among children living in poverty, from 34 to 40 percent.
- In 1998, about 8 percent of the nation's 16- to 19-year-olds were neither enrolled in school nor working, a significant decrease from 9 percent in 1997.

Special feature

- About 12 percent of children ages 5 to 17 have difficulty performing one or more everyday activities, including learning, communication, mobility, and self-care. Difficulty with learning is the most common of these four types of limitations. Children in families with lower socioeconomic status are at greater risk than other children of having difficulty performing everyday activities.

Summary list of indicators

Indicator name	Description of indicator	Previous year of data Value (Year)	New data Value (Year)	Change between years
Economic security				
Child poverty and family income	Percentage of related children under age 18 in poverty	20 (1996)	19 (1997)	NS
Secure parental employment	Percentage of children under age 18 living with parents with at least one parent employed full time all year	75 (1996)	76 (1997)	NS
Housing problems	Percentage of households with children under age 18 that report any of three housing problems	36 (1995)	—	—
Food security	Percentage of children under age 18 in households experiencing food insecurity with moderate or severe hunger	6 (1996)	4 (1997)	▼
	Percentage of children ages 2 to 5 with a good diet	27 (1995)	24 (1996)	NS
Access to health care	Percentage of children under age 18 covered by health insurance	85 (1996)	85 (1997)	NS
	Percentage of children under age 18 with no usual source of health care	6 (1995)	6 (1996)	NS
Health				
General health status	Percentage of children under age 18 in very good or excellent health	81 (1995)	81 (1996)	NS
Activity limitation	Percentage of children ages 5 to 17 with any limitation in activity resulting from chronic conditions	7 (1995)	8 (1996)	NS
Low birthweight	Percentage of infants weighing less than 5.5 pounds at birth	7.4 (1996)	7.5 (1997)	▲
Infant mortality	Deaths before the first birthday per 1,000 live births	7.3 (1996)	7.1 (1997)	▼
Childhood immunizations	Percentage of children ages 19 to 35 months who received combined series immunization coverage	77 (1996)	76 (1997)	NS
Child mortality	Deaths per 100,000 children ages 1 to 4	38 (1996)	36 (1997)	▼
	Deaths per 100,000 children ages 5 to 14	22 (1996)	21 (1997)	▼
Adolescent mortality	Deaths per 100,000 adolescents ages 15 to 19	84 (1995)	79 (1996)	▼
Adolescent births	Births per 1,000 females ages 15 to 17	34 (1996)	32 (1997)	▼
Behavior and social environment				
Regular cigarette smoking	Percentage of 8th-grade students who reported smoking daily in the previous 30 days	9 (1997)	9 (1998)	NS
	Percentage of 10th-grade students who reported smoking daily in the previous 30 days	18 (1997)	16 (1998)	▼
	Percentage of 12th-grade students who reported smoking daily in the previous 30 days	25 (1997)	22 (1998)	▼

NS = No significant change.

▲ = Significant increase.

▼ = Significant decrease.

— = Not available.

Summary list of indicators—Continued

Indicator name	Description of indicator	Previous year of data Value (Year)	New data Value (Year)	Change between years
Alcohol use	Percentage of 8th-grade students who reported having five or more alcoholic beverages in a row in the last 2 weeks	15 (1997)	14 (1998)	NS
	Percentage of 10th-grade students who reported having five or more alcoholic beverages in a row in the last 2 weeks	25 (1997)	24 (1998)	NS
	Percentage of 12th-grade students who reported having five or more alcoholic beverages in a row in the last 2 weeks	31 (1997)	32 (1998)	NS
Illicit drug use	Percentage of 8th-grade students who have used illicit drugs in the previous 30 days	13 (1997)	12 (1998)	NS
	Percentage of 10th-grade students who have used illicit drugs in the previous 30 days	23 (1997)	22 (1998)	NS
	Percentage of 12th-grade students who have used illicit drugs in the previous 30 days	26 (1997)	26 (1998)	NS
Youth victims and perpetrators of serious violent crimes	Rate of serious violent crime victimizations per 1,000 youth ages 12 to 17	30 (1996)	27 (1997)	NS
	Serious violent crime offending rate per 1,000 youth ages 12 to 17	36 (1996)	31 (1997)	▼
Education				
Family reading to young children	Percentage of children ages 3 to 5 who are read to every day by a family member	57 (1996)	—	—
Early childhood education	Percentage of children ages 3 to 4 who are enrolled in preschool	45 (1996)	48 (1997)	▲
Mathematics and reading achievement (0–500 scale)	Average mathematics scale score of 9-year-olds	231 (1996)	—	—
	Average mathematics scale score of 13-year-olds	274 (1996)	—	—
	Average mathematics scale score of 17-year-olds	307 (1996)	—	—
	Average reading scale score of 9-year-olds	212 (1996)	—	—
	Average reading scale score of 13-year-olds	259 (1996)	—	—
	Average reading scale score of 17-year-olds	287 (1996)	—	—
High school completion	Percentage of young adults ages 18 to 24 who have completed high school	86 (1996)	86 (1997)	NS
Youth neither enrolled in school nor working	Percentage of youth ages 16 to 19 who are neither in school nor working	9 (1997)	8 (1998)	▼
Higher education	Percentage of high school graduates ages 25 to 29 who have completed a bachelor's degree or higher	32 (1997)	31 (1998)	NS
Special feature				
Difficulty performing everyday activities	Percentage of children ages 5 to 17 who have difficulty performing at least one of four everyday activities	—	12.3 (1994)	—

NS = No significant change.

▲ = Significant increase.

▼ = Significant decrease.

— = Not available.

Data sources:

NCES: National Household Education Survey (NHES), various years; and National Assessment of Educational Progress (NAEP), various years.

Bureau of the Census: Current Population Survey (CPS), January–May and September–December, various years; and March Demographic, April Food Security, and October School Enrollment supplements to the CPS, various years.

Bureau of the Census and Department of Housing and Urban Development: Annual Housing Survey and American Housing Survey, various years.

National Center for Health Statistics: National Vital Statistics System, various years; National Health Interview Survey (NHIS), various years; NHIS Supplement on Disability, 1994; National Immunization Survey, 1994–97; National Linked File of Live Births and Infant Deaths, various years; and National Immunization Program, 1994–97.

Other: Monitoring the Future Survey (National Institute on Drug Abuse), various years; National Crime Victimization Survey (Bureau of Justice Statistics), various years; Uniform Crime Reporting Program, Supplementary Homicide Reports (Federal Bureau of Investigation), various years; and Continuing Survey of Food Intakes by Individuals (Center for Nutrition Policy and Promotion, U.S. Department of Agriculture), 1994–96.

For technical information, see the complete report:

Federal Interagency Forum on Child and Family Statistics. (1999). *America's Children: Key National Indicators of Well-Being: 1999* (NCES 1999–019).

Agencies in the Federal Interagency Forum on Child and Family Statistics (by Department): *Department of Agriculture,* Food Nutrition Service's Office of Analysis, Nutrition, and Evaluation; *Department of Commerce,* Bureau of the Census; *Department of Defense,* Office of the Assistant Secretary of Defense; *Department of Education,* National Center for Education Statistics; *Department of Health and Human Services,* Administration for Children and Families, Agency for Health Care Policy and Research, Maternal and Child Health Bureau, National Center for Health Statistics, National Institute of Child Health and Human Development, and Office of the Assistant Secretary for Policy Development; *Department of Housing and Urban Development,* Office of Policy Development and Research; *Department of Justice,* Bureau of Justice Statistics, National Institute of Justice, and Office of Juvenile Justice and Delinquency Prevention; *Department of Labor,* Bureau of Labor Statistics and Women's Bureau; *National Science Foundation,* Science Resources Studies Division; and *Office of Management and Budget,* Statistical Policy Office.

For questions about content, contact Laura Lippman *(laura_lippman@ed.gov).*

To obtain the complete report (NCES 1999–019),

- contact the National Maternal and Child Health Clearinghouse (NMCHC) by mail, phone, or e-mail (2070 Chain Bridge Road, Suite 450, Vienna, VA 22182; 703–356–1964; *nmchc@circsol.com*);
- visit any of the following Web sites: NCES (*http://nces.ed.gov*), NMCHC (*http://www.nmchc.org*), or the Federal Interagency Forum on Child and Family Statistics (*http://childstats.gov*); or
- contact GPO (202–512–1800).

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OTHER PUBLICATIONS AND FUNDING OPPORTUNITIES

OTHER PUBLICATIONS

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Selected Papers in School Finance: 1997–99

William J. Fowler, Jr. (editor)

This publication is the latest in the *Selected Papers in School Finance* series, for which NCES commissions papers that address issues of interest to the education finance research community. The papers are intended to promote the exchange of ideas and raise awareness of leading research in education finance.

There are five papers in this publication. Continuing the NCES tradition of commissioning papers to address problems of education finance measurement, the first two papers address advances in measuring and adjusting for education inflation. The other papers examine the relationship between spending at the school-district and school levels; private sources of funding for public education, of which surprisingly little is known; and the existing attempts to estimate the cost of educational outcomes and the implications for policymakers and researchers.

Editor affiliation: W.J. Fowler, Jr., NCES.

For questions about this publication, contact William Fowler (*william_fowler@ed.gov*).

To obtain this publication (NCES 1999-334), call the toll-free ED Pubs number (877-433-7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202-512-1800).

Federal Forecasters Directory: 1999

Debra Gerald (editor)

This directory is a publication of the Federal Forecasters Conference. The conference, a collaborative effort of forecasters from federal agencies in the U.S. government, provides a forum for sharing information on forecasting issues. One of the conference's objectives is to build a core network of forecasters whose cooperation furthers the use of forecasting as an important tool in the 21st century. The current directory lists forecasters from both federal agencies and the private sector as of June 24, 1999.

Editor affiliation: D. Gerald, NCES.

For questions about this directory, contact Debra Gerald (*debra_gerald@ed.gov*).

To obtain this directory (NCES 1999–070), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Schools and Staffing Survey (SASS)

Ullik Rouk

The Schools and Staffing Survey (SASS) is the nation's largest sample survey of the characteristics and conditions of America's public and private schools and the teachers and principals who work in them. Additionally, SASS surveys the universe of Bureau of Indian Affairs (BIA) schools and, beginning with the 1999–2000 administration, will survey the universe of charter schools. Initiated by NCES in the mid-1980s, SASS offers a source of data for policymakers, educators, education researchers, and the general public.

For this, the fourth administration, SASS shifts emphasis from teacher supply and demand issues to the measurement of teacher capacity and school capacity, both central to the recent school reform agenda. At the same time, this new version retains or expands many of the topics covered in previous administrations, maintaining the capability for trend analysis.

This 31-page booklet provides an overview of survey components, sample characteristics, and operating procedures for the 1999–2000 SASS. The booklet outlines key elements of the SASS redesign, including the research and evaluation efforts that underlie the changes. A list of NCES publications about SASS is also included.

Author affiliation: U. Rouk, Policy Studies Associates.

For questions about content, contact Charles Hammer (*charles_hammer@ed.gov*).

To obtain this booklet (NCES 1999–352), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Snapshots of Public Schools in the United States: Results From the Schools and Staffing Survey

Jin Kwon, Martha Naomi Alt, and Robin R. Henke

In order to assemble a complete picture of K–12 schooling in the United States, the NCES Schools and Staffing Survey (SASS) asks for information from a random sample of public and private schools, their principals, and a subset of their teachers. Public schools' districts are also surveyed.

This 21-page booklet was written for respondents to the School District, Public School, and Public School Principal questionnaires. Using information from SASS, the booklet presents a few snapshots of public schools. It contains information about professional development for teachers, instruction for limited-English-proficient students, perceptions of problems in schools, principals' and teachers' influence on school policies, site-based decisionmaking, and average class size by state.

Author affiliations: J. Kwon, M.N. Alt, and R.R. Henke, MPR Associates, Inc.

For questions about content, contact Kerry Gruber (*kerry_gruber@ed.gov*).

To obtain this booklet (NCES 1999–341), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Snapshots of Private Schools in the United States: Results From the Schools and Staffing Survey

Jin Kwon, Martha Naomi Alt, and Robin R. Henke

The NCES Schools and Staffing Survey (SASS) collects data from teachers, principals, and schools in both the public and private sectors. This 21-page booklet was written for respondents to the SASS Private School and School Principal questionnaires. The booklet contains overview information about types of private schools, school level and size, perceptions of problems in schools, principals' influence on school policies, influence of principals and others on establishing curriculum, high school graduation requirements, and college application rates.

Author affiliations: J. Kwon, M.N. Alt, and R.R. Henke, MPR Associates, Inc.

For questions about content, contact Kerry Gruber (*kerry_gruber@ed.gov*).

To obtain this booklet (NCES 1999–340), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Teachers on Teaching: Results From the Schools and Staffing Survey

Jin Kwon, Martha Naomi Alt, and Robin R. Henke

The NCES Schools and Staffing Survey (SASS) is a set of integrated questionnaires that collect information about public and private schools and the staff who work in them. To help provide an accurate picture of K–12 schooling in the United States, a random sample of teachers at each surveyed school receives the Teacher Questionnaire. Written for respondents to the Teacher Questionnaire, this 21-page booklet provides a few snapshots of teachers' work lives at both public and private schools. It contains information about total working hours and time spent teaching core subjects, control and influence in the classroom and in the school, professional development activities, job satisfaction, and average class size.

Author affiliations: J. Kwon, M.N. Alt, and R.R. Henke, MPR Associates, Inc.

For questions about content, contact Kerry Gruber (*kerry_gruber@ed.gov*).

To obtain this booklet (NCES 1999–344), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

The Condition of Education: 1998 Supplemental and Standard Error Tables

The Condition of Education is an annual, congressionally mandated report produced by NCES. For those people who wish to examine in greater detail the issues presented in the main volume of *The Condition*, this volume provides additional information. It includes all tables and notes that were prepared for *The Condition of Education: 1998*, including supplemental tables and notes that were omitted from the main volume due to space limitations. Standard errors for all survey estimates are also included in this supplemental volume. All supplemental information and standard errors are also contained in the electronic version of *The Condition of Education: 1998* (NCES 1999–022, available at *http://nces.ed.gov/pubs98/index.html*).

For questions about this volume, contact John Wirt (*john_wirt@ed.gov*).

To obtain this volume (NCES 1999–025), call the toll-free ED Pubs number (877–433–7827) or contact GPO (202–512–1800).

Funding Opportunities

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year.

For more information, contact Edith McArthur (*edith_mcarthur@ed.gov*) or visit the AERA Grants Program Web Site *(http://aera.ucsb.edu)*.

The AIR Grant Program—Information for the 2000 Grant Year

Officially entitled Improving Institutional Research in Postsecondary Educational Institutions, the annual grant program administered by the Association for Institutional Research (AIR) is supported by NCES and the National Science Foundation (NSF). This grant program fosters the use of national databases housed at NCES and NSF for institutional research in postsecondary education and for institutional decisionmaking. There are three types of awards: (1) fellowships for 1-week summer institutes—one institute each on the NCES and NSF databases—to be held in June 2000 in the Washington, DC, area; (2) dissertation support grants of up to $15,000 each for research utilizing these data resources; and (3) research grants of up to $30,000 each for postsecondary education research that promises to make an innovative contribution on the national level.

All awards require a written proposal, submitted electronically by January 17, 2000.

For more information, visit the AIR Web Site *(www.airweb.org)*, contact Roslyn Korb *(roslyn_korb@ed.gov)*, or contact the AIR Grant Coordinator *(air@mailer.fsu.edu)*.

The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage educational researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from $15,000 to $100,000.

For more information, contact Alex Sedlacek (*alex_sedlacek@ed.gov*).

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EDUCATION STATISTICS QUARTERLY

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The NCES Web Site provides information about NCES, as well as access to a wide range of publications and data sets about education in the United States and other nations.

Reach NCES staff

Each article in the *Quarterly* lists the name and e-mail address of the NCES staff member who can answer questions about the content. It is also easy to contact any member of the NCES staff from the NCES Home Page. Under "NCES Quick Links," select "NCES Staff Directory," then click on the first letter of the person's last name.

Obtaining NCES publications and data products

- While supplies last, you can get a single copy at no cost. Call toll-free *1-877-4ED-PUBS* (1-877-433-7827) or write
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- If you need *more than one copy* or supplies have been exhausted, you can purchase copies from the Government Printing Office (GPO). Call GPO at 202-512-1800.
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EDITORIAL NOTE

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report "statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education."

EDUCATION STATISTICS QUARTERLY

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

All NCES publications appearing in volume 1 (issues 1 through 4) of the *Quarterly* are indexed at the end of this issue. Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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Discusses the leadership role of the National Assessment of Educational Progress (NAEP) in the inclusion of special-needs students in large-scale assessments.

Featured Topic: Civics Achievement

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NOTE FROM NCES

Peggy G. Carr, Associate Commissioner, Assessment Division

Assessing the Achievement of All Students

As our founding fathers affirmed, the well-being of America's constitutional democracy depends on an informed body of citizens who productively participate in civic affairs. However, recent research suggests that young adults have little interest in politics or activism and that their knowledge of basic civics needs improvement. Accordingly, the National Assessment of Educational Progress (NAEP) has sought to answer the following question: *How well are American youth being prepared to meet their citizenship responsibilities?*

This issue of the *Quarterly* features the *NAEP 1998 Civics Report Card for the Nation*, which addresses the state of civic education in this country. Students in grades 4, 8, and 12 were assessed on their ability to demonstrate the *intellectual skills* and *participatory skills* that enable citizens to respond to the challenges of life in a constitutional democracy. They were also assessed on *civic dispositions*, which involve an understanding of such beliefs as the rights and responsibilities of individuals in society. As you will see in the NAEP civics article, the results provide insight into the lack of understanding and applied civic knowledge on the part of students in American schools today.

What will *not* be evident in this *Quarterly* article is the significant contribution that the NAEP 1998 Civics Assessment has made toward minimizing barriers to including and reporting on special-needs students in large-scale surveys. Including all students in appropriate instruction and state and districtwide assessment programs has become an important issue in recent years. Prior to implementation of the Education for All Handicapped Children Act (EAHCA) in 1975, children with disabilities were not provided an equal opportunity to participate in our nation's education system. Many students with disabilities were excluded from the general curriculum, that is, the same curriculum as for nondisabled students, and the assessments available to their nondisabled classmates were not provided for these students. In 1990, the EAHCA was renamed the Individuals with Disabilities Education Act (IDEA). The IDEA Amendments of 1997 (IDEA '97) focus on improving teaching, learning, and educational results for students with disabilities. IDEA '97 makes clear that students with disabilities must be included in general state and districtwide assessment programs, performance goals and indicators are to be developed for these students, and the performance of students with disabilities is to be included in reports to the public. For many students, participation in assessments could not occur without providing appropriate accommodations or modifications in test administration, which must be individually determined based on the needs of each disabled student. Such accommodations are necessary for many disabled students to participate in assessments such as NAEP.

In 1996, prior to IDEA '97, NAEP began to focus on criteria that facilitate inclusion rather than exclusion when there is doubt. NAEP makes every effort to ensure that all selected students, including students with disabilities and those with limited English proficiency, are assessed. The 1998 assessments in civics and writing mark the first time that the results of students tested with accommodations were included in the overall NAEP assessment results. This approach contrasts with that of earlier NAEP surveys, where data for these students were not included in the reported results. Accommodations and reporting of results for most of these students are the first steps toward total inclusion of those who can meaningfully participate. NAEP will continue to seek methods to appropriately accommodate as many students as possible while ensuring the psychometric validity of their scores. This goal is aligned with the fundamental mission of NCES, to "collect such statistics and facts as shall show the condition and progress of education . . ."

As Associate Commissioner for Assessment, I will continue to support such critical efforts as inclusion to ensure that NAEP is truly a national monitor of achievement for *all* students. Within this context, methodologies will be developed to ensure validity of assessments, comparability over time, and comparability across states at differing stages of IDEA implementation. Through assessments such as the NAEP 1998 Civics Assessment, I intend to advance NAEP's leadership role not only in monitoring students' progress in academic achievement, but also in pioneering education assessment methodology. For more information on NAEP research and development work on issues of inclusion and for an upcoming special report on inclusion in reading and mathematics, visit the NAEP Home Page at *http://nces.ed.gov/nationsreportcard*

FEATURED TOPIC: CIVICS ASSESSMENT

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NAEP 1998 Civics Report Card for the Nation

Anthony D. Lutkus, Andrew R. Weiss, Jay R. Campbell, John Mazzeo, and Stephen Lazer

This article was originally published as the* NAEP 1998 Civics Report Card Highlights. *Some of the tables and sections from the* Highlights *have been omitted. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1998 Civics Assessment.

The strength of America's constitutional democracy comes largely from the informed, active participation of its citizens, whether voting in an election, spending time on jury duty, volunteering for community service, or simply keeping aware of current affairs. Will the next generation of citizens—today's students—have the knowledge, skills, and interest to fulfill their civic responsibilities? The National Assessment of Educational Progress (NAEP), the nation's only ongoing survey of what American students know and can do in various academic subjects, is one resource that can help answer this question.

NAEP is administered by the National Center for Education Statistics (NCES) with policy oversight by the National Assessment Governing Board (NAGB). In 1998, NAEP administered a civics assessment to a national sample representative of all students at grades 4, 8, and 12. The results of the assessment provide information about students' civic knowledge, skills, and interests.

This article presents highlights from the NAEP 1998 Civics Assessment, describing its content and major findings, as well as students' experiences at home and school that are associated with achievement in the study of civics. Student performance is reported as an average score based on the NAEP civics scale, which ranges from 0 to 300. The average scale score reflects the overall civics performance of a particular group of students. Student civics performance is also reported in terms of three achievement levels: *Basic*, *Proficient*, and *Advanced*. The achievement levels are performance standards adopted by NAGB as part of its statutory responsibilities. The levels are collective judgments of what students should know and be able to do for each grade tested. They are based on recommendations by broadly representative panels of classroom teachers, education specialists, and members of the general public.

As provided by law, the Acting Commissioner of Education Statistics, upon review of a congressionally mandated evaluation of NAEP, has determined that the achievement levels are to be considered developmental and should be interpreted and used with caution. However, both the Acting Commissioner and NAGB believe these performance standards are useful for understanding trends in student achievement. They have been widely used by national and state officials, including the National Education Goals Panel, as a common yardstick of academic performance.

The NAEP 1998 Civics Assessment

Framework for the civics assessment

The guidelines used to develop the NAEP 1998 Civics Assessment were established in the *Civics Framework for the 1998 National Assessment of Educational Progress* (NAGB 1996). The framework, published by NAGB, was developed through a national consensus-building process that gathered input from a variety of citizens. Educators, assessment experts, scholars, public officials, businesspeople, and other laypeople, including students, all participated in this process.

The civics framework focuses on three interrelated components: knowledge, intellectual and participatory skills, and civic dispositions. Together, these components make up the essential elements of civic education in America.

What civic knowledge should students be able to demonstrate? According to the framework, the civic knowledge that students should be able to demonstrate can be found in five fundamental areas:

- civic life, politics, and government;
- foundations of the American political system;
- how the government established by the Constitution represents the purposes, values, and principles of American democracy;
- the relationship of the United States to other nations and to world affairs; and
- the roles of citizens in American democracy.

What civic skills should students be able to demonstrate? Students should be able to demonstrate the skills that enable citizens to use their civic knowledge to respond to the challenges of life in a constitutional democracy. *Intellectual skills* help citizens identify, describe, explain, and analyze information and allow them to evaluate, take, and defend positions on public issues. *Participatory skills* enable citizens to monitor and influence civic life by working with others, expressing ideas, and managing conflict.

What are civic dispositions? Civic dispositions are those ideals held by citizens, such as belief in the rights and responsibilities of individuals in society and in the advancement of the ideals of the government. These "dispositions" underlie participation in civic affairs, such as elections or community service, and the assumption of personal, political, and economic responsibilities.

Content of the civics assessment

The 1998 civics assessment contained a combination of multiple-choice questions and constructed-response (or open-ended) questions. Each student participating in the assessment received two 25-minute sections of questions.

Most civics questions measured both knowledge and intellectual skills. In addition, some questions also measured participatory skills and/or civic dispositions. In order to ensure that the civics assessment conformed closely to the framework, a special committee of civics teachers and other educators reviewed each question being considered for use in the assessment.

The assessment included questions that test the civic knowledge areas outlined in the framework. At grade 4, about one-quarter of the questions focused on civic life, politics, and government, while at grades 8 and 12, there was more emphasis on the Constitution. At all three grades, at least a quarter of the assessment's questions dealt with the roles of citizens in American democracy.

Sample Questions and Student Responses

The following sample questions and student responses from the NAEP 1998 Civics Assessment exemplify student performance within each of the three achievement-level ranges: *Basic*, *Proficient*, and *Advanced*. One sample question for each achievement level is presented for each of the three grades assessed.[1]

Grade 4 sample questions and responses

The following constructed-response question was designed to measure students' ability to tell the difference between power and authority. Although the first part of the sample response was not credited because its meaning was unclear, both reasons the student gave for being a police officer were credited. This response received a score of 3 ("Acceptable") on a 4-point scale and represents the *Basic* level at grade 4. The responses of 71 percent of fourth-graders at the *Basic* level and 67 percent of all fourth-graders were rated as "Acceptable" or better.

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[1] Over 100 questions from the 1998 civics assessment are available for viewing at *http://nces.ed.gov/nationsreportcard/itmrls/intro.shtml*

Grade 4 *Basic* level: Sample question and response

Scott wants to be a police officer when he grows up. He says the police get to wear fancy uniforms with badges, use handcuffs, and drive cars as fast as they want. What is wrong with Scott's ideas about why he wants to be a police officer?

He Thinks he gets To be big and powerFul because he gets To brake The rules of others.

Think about the things police officers do in their work. What are two good reasons to be a police officer?

1) You discipline people so They can learn From Their misTakes.

2) Make peace beTween people ThaT are FighTing and Fix The problem.

The following multiple-choice question measured students' understanding of international trade. While reasons A, C, and D may result when the United States trades with other countries, reason B is clearly the most important. Fourth-graders at the *Proficient* level were likely to choose the correct response. Thus, 70 percent of fourth-graders at the *Proficient* level answered this question correctly, compared with 49 percent of all fourth-graders.

Grade 4 *Proficient* level: Sample question

11. Which of the following is the most important reason why the United States trades with other countries?

(A) People get a chance to travel.

➜ (B) It helps people get the things they need.

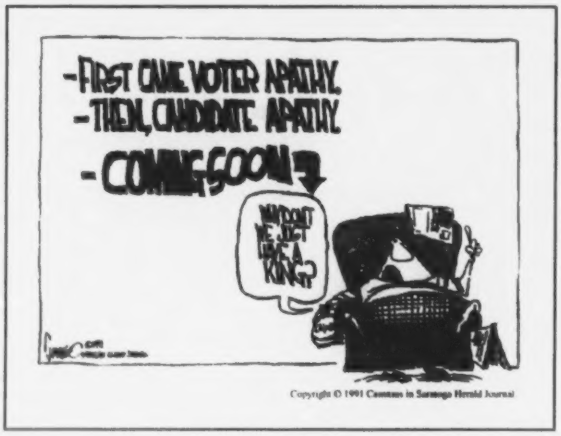
(C) It helps us learn about other cultures.

(D) We can learn other languages.

The following fourth-grade question required students to interpret a cartoon about the importance of civic participation to democracy. Answering this question correctly requires students to both understand a political cartoon—a difficult task for young students—and respond to a question about a sophisticated concept. Fourth-graders at the *Advanced* level were likely to choose the correct response. Among all fourth-grade students, 26 percent answered the question correctly.

Grade 4 *Advanced* level: Sample question

The following question refers to the cartoon below. The word *apathy* in the cartoon means "not caring."


-FIRST CAME VOTER APATHY.
-THEN, CANDIDATE APATHY.
-COMING SOON
WHY DON'T WE JUST HAVE A KING?

Copyright © 1991 [illegible] in Saratoga Herald Journal

What is the message of the cartoon?

➜ (A) Democracy could be in danger if people do not vote.

(B) People like to get all of their political ideas from television.

(C) People do not care whether they have the right to freedom of speech.

(D) It is hard to be a candidate for President.

Grade 8 sample questions and responses

The following question falls within the civic knowledge category of the United States and its relationship to other countries and to world affairs. It was designed to measure students' understanding of what the United Nations can do to help resolve international conflicts. Eighth-graders who were at the *Basic* level were likely to choose the correct response; 84 percent of them did so. Seventy-seven percent of all eighth-grade students answered the question correctly.

Grade 8 *Basic* level: Sample question

Two countries both claim that an island in the Pacific Ocean belongs to them. The countries are preparing to go to war with each other over this issue.

What is the United Nations able to do to help end the conflict?

(A) Send weapons to both sides.

(B) Disarm the militaries of both countries.

➜ (C) Arrange for diplomatic negotiations between the two countries.

(D) Force all other countries to stop trading with the two countries.

The eighth-grade multiple-choice question shown below was part of a two-question set about the distribution and sharing of powers among the three branches of the federal government. It required students to demonstrate an understanding of conflicting views about the power of the Supreme Court. Eighth-grade students at the *Proficient* level were likely to choose the correct response. Among students at the *Proficient* level, 56 percent responded correctly, compared with 31 percent of all eighth-graders.

Grade 8 *Proficient* level: Sample question

This question refers to the passage below:

> When two [people] come into [the Supreme] Court, one may say: "an act of Congress means this." The other may say it means the opposite. We [the Court] then say it means one of the two or something else in between. In that way we *are* making the law, aren't we?
>
> —Earl Warren, Chief Justice of the Supreme Court

Some people are troubled by the role of the Court described by Chief Justice Warren. Which argument could they effectively use against it?

➜ (A) It is dangerous to give nonelected officials such as judges so much power in the government.

(B) The Supreme Court makes it too difficult for the federal government to exercise its power over the states.

(C) Supreme Court judges are the members of society most capable of making decisions about social policy.

(D) The main task of the Supreme Court is to rewrite the Constitution to respond to modern problems.

The following eighth-grade constructed-response question measured students' understanding of ways the United States Constitution limits the power of government. The sample response received a score of 3 ("Complete") on a 3-point scale because it provided two different and specific correct answers. This response represents the *Advanced* level at eighth grade. Only 13 percent of all eighth-graders received a rating of "Complete."

Grade 8 *Advanced* level: Sample question and response

Give two specific examples of how the United States Constitution limits the power of government.

1) Through separation of powers.
2) Through Judicial Review.

Grade 12 sample questions and responses

The following multiple-choice question, which measures civic knowledge about the foundations of the American political system, is the second of a two-question set based on a short statement. It deals with the idea that the Constitution upholds majority rule in certain key areas of decisionmaking, but limits the power of majorities in order to protect the rights of individuals. Twelfth-grade students at the *Basic* level were likely to choose the correct response. Seventy-eight percent of students at the *Basic* level and 72 percent of all 12th-graders answered correctly.

Grade 12 *Basic* level: Sample question

This question refers to the statement below:

> The United States is not a fully democratic country. The framers of the Constitution created a system in which majorities—even large majorities or their representatives in Congress—do not have the right to do anything and everything they want.

The framers of the Constitution wanted to limit the power of majorities in order to

(A) encourage the growth of political parties

(B) ensure that state governments would remain weak

(C) enable the government to act quickly in times of crisis

➜ (D) protect the rights of individuals and minorities

The following constructed-response question was designed to measure 12th-graders' understanding of how the Constitution benefits American society by limiting the power of government. The response shown received a score of 3 ("Complete") on a 3-point scale because both parts mention aspects of America's constitutional system that are designed to prevent "absolute arbitrary power" and "governing without settled laws." It represents the *Proficient* level at 12th grade. Fifty-one percent of 12th-graders at the *Proficient* level, compared with 25 percent of all 12th-graders, received a rating of "Complete."

Grade 12 *Proficient* level:
Sample question and response

This question refers to the passage below:

Absolute arbitrary power, or governing without settled laws, can neither of them be consistent with the ends of society and government.

—John Locke

List two ways the American system of government is designed to prevent "absolute arbitrary power" and "governing without settled laws."

1) The system of checks and balances prevents a certain branch of government from getting too powerful.
2) The amendment process allows laws to be added or altered to fit the best needs of citizens.

The following 12th-grade multiple-choice question was intended to measure students' understanding of the constitutional limits on the power of majorities, as well as students' ability to interpret a statement. In the assessment, this question was paired with a question that asked why the framers of the Constitution wanted to limit the power of majorities (that question is included in this article as the sample question for the grade 12 *Basic* level). Twelfth-grade students at the *Advanced* level were likely to choose the correct response to the following question. Among students at the *Advanced* level, 85 percent answered correctly, compared with 30 percent of all 12th-graders.

Grade 12 *Advanced* level: Sample question

This question refers to the statement below:

The United States is not a fully democratic country. The framers of the Constitution created a system in which majorities—even large majorities or their representatives in Congress—do not have the right to do anything and everything they want.

Which aspect of the American system of government shows one of the limits on the power of majorities discussed above?

(A) The ability of Congress to override presidential vetoes
➜ (B) The Supreme Court's power to overturn unconstitutional laws
(C) The right of Congress to impeach Presidents and federal judges
(D) The ability of people in many states to vote public initiatives into law

NAEP Civics Assessment Results for the Nation

As shown in table A, 23 percent of 4th-graders, 22 percent of 8th-graders, and 26 percent of 12th-graders were at or above *Proficient*—the level identified by NAGB as the standard all students should reach.

While table A shows the cumulative percentages of students "at or above" each achievement level, figure A shows the percentage of students who fell below the *Basic* achievement level and those *within* the *Basic*, *Proficient*, and *Advanced* levels.

Civics Performance for Selected Student Subgroups

The NAEP civics scores at each grade (4, 8, and 12) range from 0 to 300, with a national average of 150. These scores can be used to compare various subgroups of students.

Civics performance by gender

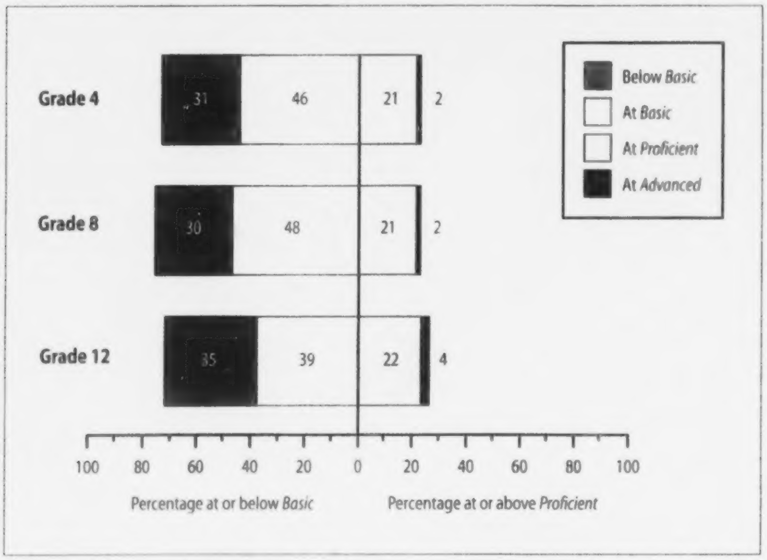
Females had higher average scores than males at grades 8 and 12, but not at grade 4. At all three grades, comparable

Table A.—Percentage of students at or above the civics achievement levels: 1998

	Nation			
	Below *Basic*	At or above *Basic*	At or above *Proficient*	*Advanced*
Grade 4	31	69	23	2
Grade 8	30	70	22	2
Grade 12	35	65	26	4

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1998 Civics Assessment. (Previously published on p. 8 of the *NAEP 1998 Civics Report Card Highlights*.)

Figure A.—Percentage of students within each civics achievement-level range: 1998



NOTE: Percentages may not add up to 100, or to the exact percentages at or above achievement levels, due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1998 Civics Assessment. (Previously published on p. 8 of the *NAEP 1998 Civics Report Card Highlights*.)

percentages of males and females reached or exceeded the *Proficient* level of civics achievement.

Civics performance by race/ethnicity

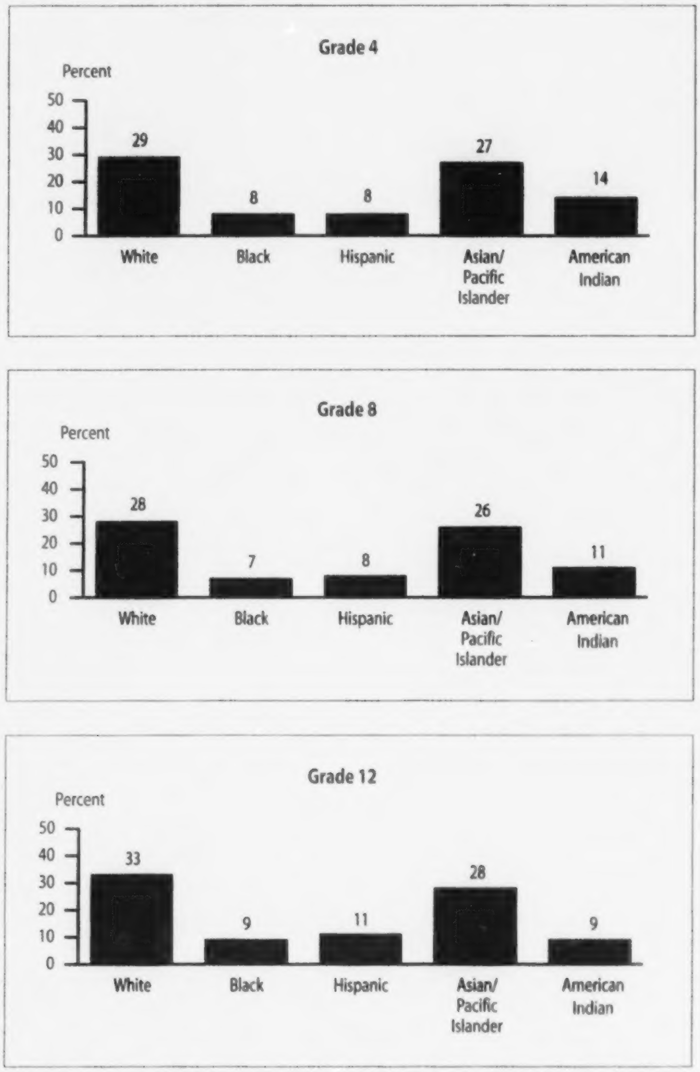
At grade 4, white students had higher scores than Asian/Pacific Islander students who, in turn, outscored black, Hispanic, and American Indian students. In addition, black and American Indian students scored higher, on average, than Hispanic students. At grade 8, white students scored higher, on average, than black, Hispanic, and American Indian students. Black students and Asian/Pacific Islander students also scored higher than their Hispanic peers. At grade 12, white and Asian/Pacific Islander students had higher scores than black, Hispanic, and American Indian students. At each grade, higher percentages of white students were at or above the *Proficient* level than black, Hispanic, or American Indian students (figure B).

Civics performance by type of school

At all three grades, students attending nonpublic schools had higher scores than students attending public schools. Differences between the performance of students in public and nonpublic schools may be due to factors such as admission standards and the likelihood of greater parental involvement at nonpublic schools.

At each grade, a higher percentage of nonpublic school students reached or exceeded the *Proficient* level than did public school students. Across the three grades, between 35 and 40 percent of nonpublic school students were at or

Figure B.—Percentage of students at or above the *Proficient* achievement level in civics, by race/ethnicity: 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1998 Civics Assessment. (Previously published on p. 9 of the *NAEP 1998 Civics Report Card Highlights*.)

above the *Proficient* level of performance. In comparison, between 20 and 25 percent of public school students reached or exceeded this level within each grade.

School and Home Factors Related to Civics Achievement

What activities are related to students' achievement in civics? Are there aspects of students' environments at home, at school, or in the community that encourage or support the development of young citizens? NAEP collects information that may help researchers, educators, and parents answer these questions. For example, it may suggest approaches to help students become more active citizens and provide a resource for parents seeking to support their children's understanding of civics.

While it is possible to study the relationship between students' performance in civics and various other factors, it cannot be established that these factors cause a higher level of achievement in civics. The relationship that exists between civics achievement and another factor may, in fact, be caused by a complex interaction of numerous factors.

Discussing studies at home

Students who participated in the NAEP 1998 Civics Assessment were asked how often they discuss their school studies (in any subject) with someone at home. At all three grades, about two-thirds of students said they discussed their studies with someone at home at least once or twice a week. Those students who said that they did so "almost every day" or "once or twice a week" had higher civics scores than those who said they did so less frequently.

Use of the Internet in civics class

Is there a relationship between use of the Internet, a technology increasingly available in classrooms, and students' civics performance? Teachers of fourth- and eighth-grade students who participated in the assessment were asked how often their students accessed the Internet while in class.

As reported by their teachers, about one-quarter of fourth-graders and nearly one-half of eighth-graders used the Internet at least once or twice a month. At both grades, students who accessed the Internet in class once or twice a month had higher civics scores than those who never or hardly ever did so. Eighth-graders who used the Internet at least once a week also had higher civics scores than those students who never or hardly ever did so.

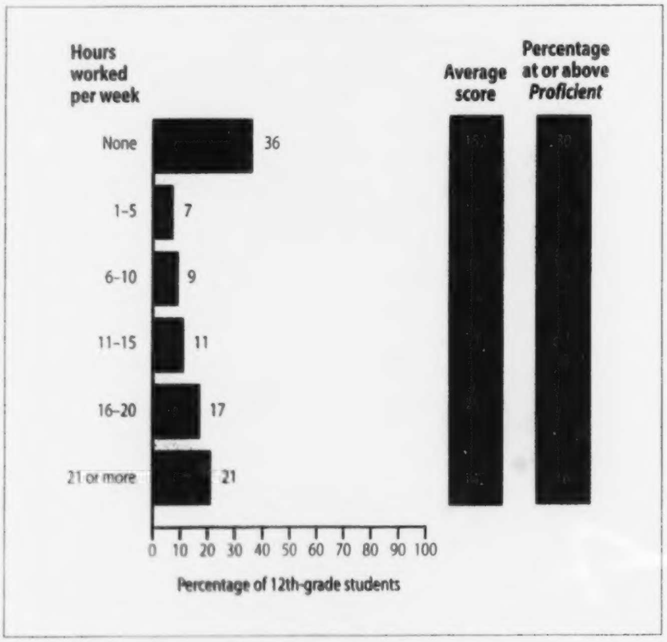
Student jobs

Many American high school seniors work at jobs for pay. Is there a relationship between the number of hours students work and their performance on the civics assessment? Twelfth-graders taking the assessment were asked how many hours per week they work at a job for pay. Almost two-thirds of the students reported that they work at a job for pay; approximately one-fifth reported working 21 hours or more per week (figure C). Students who reported working a moderate number of hours per week (6–15 hours) had higher scores than both the students who reported working more hours and the students who reported that they did not work at a job for pay.

Student volunteer work

In recent years, an increasing number of young people have been active in community service. Such service can be a key

Figure C.—Percentage of students, average civics scale scores, and percentage at or above *Proficient*, by hours per week working at a job for pay, grade 12: 1998



NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1998 Civics Assessment. (Previously published on p. 11 of the *NAEP 1998 Civics Report Card Highlights*.)

part of an individual's civic education. Consequently, 12th-grade students taking the 1998 civics assessment were asked whether they had volunteered for community service during the past year. More than half of the students said that they had done some volunteer work, either with their school or on their own (figure D). Although not shown by these percentages, some of these students may have done both types of volunteer work (each student could indicate only one type). Students who did volunteer work had higher average civics scores than students who said they had not done volunteer work in the past year.

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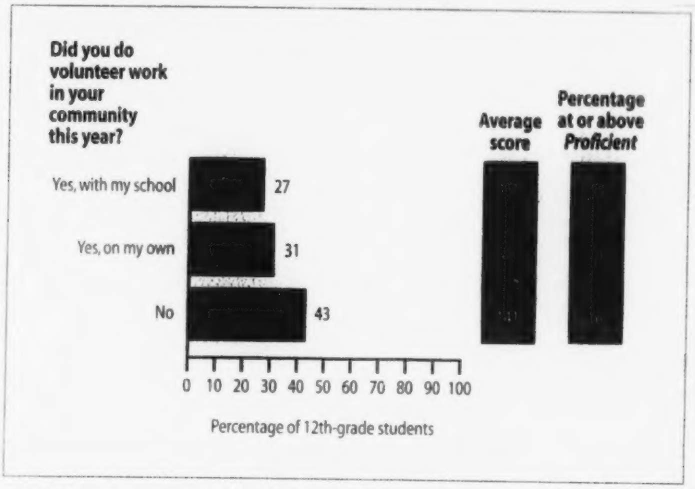
National Assessment Governing Board. (1996). *Civics Framework for the 1998 National Assessment of Educational Progress.* Washington, DC: Author.

Figure D.—Percentage of students, average civics scale scores, and percentage at or above *Proficient*, by volunteer work status, grade 12: 1998



NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1998 Civics Assessment. (Previously published on p. 11 of the *NAEP 1998 Civics Report Card Highlights*.)

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For additional details about NAEP 1998 methodology, see

Allen, N.L., Donoghue, J.R., and Schoeps, T.L. (forthcoming). *The NAEP 1998 Technical Report* (NCES 2000–463).

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To obtain the complete report (NCES 2000–457), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

To obtain the Highlights brochure from which this article is excerpted (NCES 2000–460), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov)*.

Invited Commentary: The Need to Improve Education in Civics and Government

Charles N. Quigley, Executive Director, Center for Civic Education

This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

I would like to make the following four points in response to the findings of the National Assessment of Educational Progress (NAEP) 1998 Civics Assessment:

- The NAEP findings are grounds for concern. They call for action to remedy a serious deficiency in the education of American citizens.
- Failure of students to do well on the NAEP assessment is a direct consequence of the widespread lack of adequate curricular requirements, teacher preparation, and instruction in civics and government.
- Good programs in civics and government produce good results. They are the solution to the shortcomings identified in the NAEP results.
- There is a need for a national campaign to ensure that effective instruction in civics and government is provided to every student in every school in the nation.

Grounds for Concern About the NAEP Findings

The NAEP civics assessment found that only about 25 percent of U.S. 4th-, 8th-, and 12th-graders demonstrated proficiency in civics. These findings are not surprising. They are consistent with those of other studies of the knowledge of American youth about politics and government that have been conducted in recent years. Add to these findings the results of studies of the participation of our young people in the political life of their communities and nation and we have a picture of large numbers of our youth as being ill-informed about their government and not participating in it.

A recent study commissioned by the National Association of Secretaries of State (1999) found that in the last presidential election less than 20 percent of eligible voters between the ages of 18 and 25 bothered to vote. The same study revealed that 94 percent of our youth believe that "the most important thing I can do as a citizen is to help others." This is an admirable sentiment, but it is also a conception of the roles and responsibilities of citizenship that is totally inadequate in a nation that is supposed to have a government that is of the people, by the people, and for the people.

In response to the NAEP findings, the noted scholar R. Freeman Butts has commented, "I agree that the results are not too surprising, but in any event they are deplorable, worse than 'not satisfactory'. . . . the civics findings should trumpet a national alert [about a problem] that is even more disturbing than the weaknesses in other academic subjects. For our citizenship itself is at stake" (Butts 1999).

Inadequacy of Current Curricular Requirements, Teacher Preparation, and Instruction

One of the major reasons our students did not do well on the NAEP assessment is that the vast majority are either not being taught civics and government at all or are being taught too little, too late, and inadequately. Under these conditions, we can hardly expect them to do well on such a test. One major reason civics is not taught adequately is that most states and school districts do not have sufficient requirements for instruction in civics and government.

Suggested standards for developing policy on civic education

With the assistance of more than 150 of our colleagues in civic education, the Center for Civic Education has developed the following standards that we think should guide the development of policy on civic education in every state and school district in the nation (Center for Civic Education 1999):

- Education in civics and government should not be incidental to the schooling of American youth but should be treated as a central purpose of education essential to the well-being of American democracy.
- Civics and government should be considered a subject on a level with other subjects. Civics and government, like history and geography, constitute an integrative and interdisciplinary subject.
- Civics and government should be taught explicitly and systematically from kindergarten through 12th grade, either as separate units and courses or as readily identifiable parts of courses in other subjects.
- Effective instruction in civics and government should include attention to the content of the discipline as

well as to the essential skills, principles, and values required for full participation in and reasoned commitment to our democratic system.

We are not aware of any state or school district that meets these standards.

Shortcomings of state policies on civic education

To find out more about state policies and practices in civic education, the Center for Civic Education commissioned a study by the Lyndon B. Johnson School of Public Affairs (University of Texas at Austin 1999b). The findings of that study, briefly noted below, substantiate the shortcomings of public policy on civic education.

State constitutions. Thirteen states' constitutions explicitly affirm that an informed citizenry is a worthwhile goal by mandating public education or otherwise promoting education. However, no constitutional provisions specifically require instruction in citizenship, government, rights, or liberties.

State statutes. Twenty-six states have enacted state laws specifically related to civic education. These statutes are of four types (a few states have more than one type):

- statutes that require instruction in civics but do not require specific courses, standards, or assessments, leaving the details to regulatory authorities, school districts, or schools (11 states);
- statutes that require some form of civics assessment or the specification of civics content in state standards (5 states);
- statutes that require one or more specific courses in civics, government, constitutions, or related topics, often mandating not only the instruction topic but also the year and length of the course(s) (10 states); and
- statutes that relate to civic education but do not fit any of the other three categories (e.g., statutes that fund civic education curricula, authorize community service in schools, or require a state clearinghouse for information on character and citizenship education programs) (7 states).

State standards. States address civics topics in their state academic standards in one of three ways:

- by adopting separate civics standards (3 states);
- by including civics topics as an explicit section in social studies standards (23 states); and
- by integrating civics content into social studies standards (18 states, including the District of Columbia).

In spring 1999, 5 more states were planning to incorporate civics topics into their state standards; 1 state had no plans for standards with civics content; and 1 state had no plans for academic content standards in any subjects.

State requirements for high school civics/government courses. Twenty-nine states (including the District of Columbia) reported requiring that students complete one or more high school courses in civics/government. Only 5 of these states require a 12th-grade capstone course.

State assessments of civics topics. Thirty-one states reported testing civics topics, with 11 more states (including the District of Columbia) expecting to institute new tests soon. Only 3 of the 31 states reported having a separate, standalone civics test, however; in the other 28 states, the civics topics are included in other state assessments. In 15 of the 31 states, student failure on these tests prevents high school graduation; in 2 of the 15 states, failure also prevents promotion.

State certification to teach civics topics. Thirteen states reported offering certification in civics or government (or both) for high school teachers, with 10 of these states also offering certification in civics or government for middle school or junior high school teachers. The most common state certification for teachers of civics topics is a broad history and social studies certification, although 3 states reported requiring only a general teaching certification. Twenty-three states reported requiring teachers to pass some kind of standardized test of their civics knowledge before being certified to teach civics content.

These policies clearly do not meet the standards outlined earlier in this article.

Other shortcomings in civic education

Other shortcomings in civic education that are obvious to informed observers include

- inadequate teacher preparation;
- an emphasis on the structure of institutions and current events without providing the framework of

democratic values and principles required for understanding and decisionmaking;

- lack of sequential and increasingly sophisticated development of the subject; and
- inadequate methodology for teaching knowledge and skills and for fostering desirable attitudes, dispositions, and commitments.

Effectiveness of Good Programs in Civics and Government

A number of studies demonstrate that good instruction in civics and government results in student attainment of the desired knowledge, skills, and attitudes.* I will illustrate what good civic education programs can achieve with the following anecdote reported by a civic educator from the state of Alabama (Black 1999):

> Sixth-graders at Bryan Elementary School in Morris, Alabama, taking part in a civics project tried to get a traffic light installed at a busy intersection near their school. What they thought was a simple task turned out to involve the local city council and police department, the county sheriff's office, the county planning office, the state department of transportation, and other agencies. The students completed their project and presented their recommendations to their city council and police chief. They were promised the light by a certain date. However, when it was not installed at that time, the students developed a lobbying plan and called the officials every week until the light was finally installed.
>
> Six months later, the county commission announced its intention to build a new jail close to Bryan Elementary School on Turkey Creek, an area that the students used as an outdoor science laboratory. Their parents objected to the building of the jail so close to their school. They tried a number of approaches and received a lot of media attention but had very little effect on the county commission.
>
> Then the parents realized they already had "practiced experts in the political process" in their homes, and they began talking with their children about how to influence their county commission. The parents then talked with their children's teachers and obtained copies of the *Project Citizen* textbook [Center for Civic Education 1996] their children had been using.
>
> Advised by their children, the parents got organized. The "angry voters" began turning into "an educated citizenry," county commissioners started turning up at public meetings (instead of ignoring or insulting the parents who came to county commission meetings), and . . . the jail project was cancelled.
>
> In an interesting additional twist, the students' interest in Turkey Creek skyrocketed, and last spring six Bryan classes took part in a field day at the creek, doing trash cleanup and environmental impact studies.

Need for a National Campaign to Promote Effective Instruction in Civics and Government

There is a need to ensure that all students in the United States receive the kind of instruction in civics and government that will enable them to participate competently and responsibly in the governance of their nation. Under the leadership of Secretary Richard W. Riley, the U.S. Department of Education has provided significant support for civic education. Other agencies of the federal government and Congress have also supported civic education. The federal government can play a leadership and catalytic role in promoting the improvement of civic education. The major responsibility for providing sound programs in civic education, however, lies at the state and local levels, where much work needs to be done.

With the assistance of many of our colleagues, the Center for Civic Education has taken the first steps to launch a national campaign to promote civic education. We are exploring ways to cooperate with other organizations that have also recognized the need for better civic education. These include, for example, the National Conference of State Legislatures, the National Commission for Civic Renewal, the Compact for Learning and Citizenship of the Education Commission of the States, the National Association of Secretaries of State, and the National Council for the Social Studies.

Aristotle said, "If liberty and equality, as is thought by some, are chiefly to be found in a democracy, they will be attained when all persons alike share in the government to the utmost." This quotation conveys an important thought, but I would like to add something to it. What is missing from Aristotle's statement is the idea that participation alone is not enough. We need to develop enlightened participation, and the best way to do that is through civic education. The NAEP findings indicate that about one-quarter of U.S. students demonstrate proficiency in civics. It is our responsibility to make sure the remaining three-quarters of students have an opportunity to do as well. Thus prepared, they should have the capacity and the will to work together to preserve our democratic heritage and narrow the gap between our ideals and reality.

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*For example, see University of Texas at Austin (1999a), Brody (1994), Stretcher (1988), and Niemi and Junn (1998).

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Invited Commentary: Uses and Limitations of the NAEP 1998 Civics Assessment

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This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.

The release of a new, major education report is looked upon with considerable anticipation, especially by those of us who worked for years on its conceptualization and operationalization. Reports such as the *NAEP 1998 Civics Report Card for the Nation* answer numerous questions—sometimes confirming what we thought we knew, sometimes catching us by surprise, usually a bit of each. But for those of us interested in the assessment as a research base as well as for the overall and group scores it reveals, the release ironically raises as many questions as it answers.

Has Knowledge of Civics Declined Over Time?

One of the most intriguing questions raised by results of the National Assessment of Educational Progress (NAEP) 1998 Civics Assessment is how students in the 4th, 8th, and 12th grades would have scored on a comparable test 10, 20, or even 50 years ago. It is widely argued that young people in the 1990s are characterized by disinterest, distrust, and disengagement. Though participating heavily in individual acts of community service (as shown in the 1998 civics assessment and elsewhere), students and young adults are uninterested in politics, distrustful of government, and uninvolved in voting and other forms of civic and political life. All of these characteristics might have contributed to low knowledge levels in the new civics assessment. Thus, had there been a civics assessment in, say, the 1950s, the leading hypothesis is that students, on the whole, would have outperformed today's students. Unfortunately, we have only limited evidence on this point.

Lack of knowledge by all age groups has been of concern for a long time, but especially since modern polling techniques have allowed representative, nationwide "tests" of civic knowledge (Hyman and Sheatsley 1947). Still, systematic, over-time evidence about young people is hard to come by. Comparing 1989 survey results to results from the 1940s and 1950s, a recent study found a dramatic increase in the knowledge gap between young people (18- to 29-year-olds) and those 45 to 54 years old; however, a comparison could be made for only five survey questions (Delli Carpini and Keeter 1996, 172). Moreover, changing education levels over this period make such comparisons even more difficult than they would otherwise be. NAEP itself has examined this question for 8th- and 12th-graders using assessments conducted in 1976, 1982, and 1988. Across these three assessments, changes in knowledge levels were small and not entirely consistent, with 13-year-olds performing as well as or better in later years but 17-year-olds generally performing less well (Anderson et al. 1990).[1]

Has Civic Education Declined Over Time?

As discussed above, if our standard is student knowledge in previous years, we are left with something of a puzzle. Supposing, however, that there is a downward trend in knowledge among the newest generations, a further question is raised: Is it the fault of the schools? Have the quantity and quality of civics training declined sufficiently over this period that we can lay the blame on poorer civic education and, more importantly, conclude that a return to higher levels of civic education would reverse the decline in knowledge?

Once again, there is less evidence than we would like, and what information exists contradicts, in part, conventional wisdom. One might begin by observing that in the new assessment over 70 percent of 8th- and 12th-graders claimed they had studied the U.S. Constitution and Congress during the current year, and nearly as many said they had studied topics such as state and local government. These are high percentages, but student reports almost surely overestimate actual coverage. Since 1982, the National Center for Education Statistics (NCES) has conducted periodic high school transcript studies. In work underway (Niemi and Smith 1999), a coauthor and I compare information about course enrollments (not topical coverage) from the 1994 High School Transcript Study with self-reports from the NAEP 1994 U.S. History Assessment. The latter showed enrollment estimates for grades 9, 10, and 12 that were two-and-a-half to three times the percentages shown in students' transcripts (with estimates for grade 11, in which many students in fact take U.S. history, a near match). In any event, for over-time comparisons, we need to draw on additional data.

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[1] Analysis of trends between 1988 and 1998 is also planned, since the 1998 civics assessment included a partial replication of the 1988 assessment. NCES plans to release a trend report covering this replication in the year 2000.

The conventional wisdom is that considerably less time is devoted to civic education now than in the past. From the period of educational reform early in this century through the 1950s, students often had a 9th-grade civics course and perhaps a capstone 12th-grade course in civics, American government, or problems of democracy. Beginning in the 1960s, according to the conventional view, this pattern broke down, with more students taking electives in other social studies (especially economics and psychology) or simply taking less social studies altogether.

Such data as we have are not entirely supportive of this picture. For one thing, although information prior to 1982 provides only an approximation of course-taking habits, it appears as if civics or government courses, though widespread, were far from inclusive of all high school students during the "traditional" period (through the 1950s). The conventional picture holds true for the 1970s and early 1980s, as such courses reached a smaller proportion of graduating seniors. Yet between 1982 and 1994, there was a considerable growth rather than further decline in government courses. One tabulation shows the proportion of seniors who had taken at least one semester of civics or American government in grades 9–12 increasing from 62 percent in 1982 to 78 percent in 1994 (Legum et al. 1998, A-199). The latter figure compares favorably with estimates for the middle of the century. To further complicate matters, however, it is likely that in earlier decades students more often had a full-year course rather than only one semester, but we lack hard evidence to support this point.

In any event, information about topical coverage and course-taking habits suggests two points. First, there is room for additional civics instruction, especially at the 12th-grade level. Only half of 1993–94 seniors had a semester or more of American government in their final year of high school, and only about 70 percent had a full year of any social studies (Niemi and Smith 1999). Second, simply increasing the amount of civics teaching, if the recent upswing in government coursework is any guide, is not likely to increase substantially the knowledge levels of young people. Improving the nature and quality of government courses is likely to be as important as increasing the number of students exposed to such courses.

Did Performance Vary Across Different Parts of the Assessment?

Another question that is not answered in the *NAEP 1998 Civics Report Card* is how students performed on the subsections of the assessment. The test was designed to assess a broad range of knowledge, covering several general topics or content areas; at the 12th grade, for example, about 20 percent of the assessment was about the relationship of the United States to other nations and to world affairs (National Assessment Governing Board 1996). It remains to be seen whether students were more knowledgeable about some topics than about others. Judging by the results of the 1988 assessment, considerable variability across subject matter is likely (Niemi and Junn 1998, ch. 2). Similarly, the framework for the 1998 assessment also called for indirectly measuring students' participatory skills and civic dispositions. It will be interesting to observe overall student performance on such dimensions and whether performance varies in the same way as it does on the knowledge component. Variations in performance across subject matter might provide clues as to how the content of government courses could be improved.

A related question is how students performed on multiple-choice versus constructed-response (i.e., open-ended) items.[2] Ultimately, this is a methodological as well as a substantive question. Inasmuch as NAEP is a "low stakes" assessment in which students receive no individual scores, motivation is a problem, especially at the 12th grade. The question raised here is whether motivation is less of a problem for multiple-choice than for open-ended questions. With the former, the right answer is provided (along with several wrong answers). With the latter, students must generate their own answers, without even the usual guidance from the teacher about the kind of answer that is expected.

Does Performance Reflect Ability to Function as a Citizen?

Even if all of the above questions could be answered, there remains the matter of whether the assessment is meaningfully related to an individual's ability to function as a citizen. One can approach this question in a variety of ways. Some, for example, will no doubt argue about specific items or about the particular mix of questions. Indeed, this author, in writing about the 1988 assessment, noted critically the small number of questions about subjects such as political parties, interest groups, and women and minorities (Niemi and Junn 1998, ch. 2). Others will argue that in civics, unlike in mathematics, attitudes are the essential element, and that NAEP is seriously impaired because it is not permitted to assess students' feelings. Political scientists, as of late, have stressed another point, namely, that relatively uninformed individuals can use a variety of heuristics, cues, and shortcuts to guide them in voting and other decisionmaking processes.

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[2] Fifty-three percent of the 4th-grade assessment (judged by assessment time) consisted of multiple-choice items. At the 8th and 12th grades, 61 percent was multiple choice.

While granting some validity to each of these points of view, I would emphasize instead the broad coverage of the new assessment. As noted above, it was designed to test knowledge of a number of content areas, including the nature of civic life and politics generally; the foundations of the American political system, both generally and as it is embodied in the U.S. Constitution; the role of the United States in the international system; and the rights and responsibilities of citizens. But it was also designed to measure students' intellectual and participatory abilities. And, though unable to probe their attitudes, questions were designed to measure students' knowledge and understanding of the importance of civic dispositions, such as by asking how a democratic society benefits from citizens actively participating in the political process. A look at the sample questions on the NCES Web Site will show that students were expected to do much more than answer narrowly constructed questions about arcane constitutional provisions.

Conclusion

Of course, no test is adequate from every perspective, and the NAEP 1998 Civics Assessment is no exception. As discussed above, it will not answer all of the questions we have about student performance levels, even when fully analyzed. Yet the new assessment provides the means to answer many questions about students' knowledge of politics and government as well as the teacher and classroom context for learning about civics. The release of the *NAEP 1998 Civics Report Card* only begins the task of answering these questions. It remains for us to make full use of the new data.

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NAEP 1998 Writing Report Card for the Nation and the States

Elissa A. Greenwald, Hilary R. Persky, Jay R. Campbell, and John Mazzeo

This article was originally published as the NAEP 1998 Writing Report Card Highlights. Some of the tables and sections from the Highlights have been omitted. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1998 Writing Assessment.

American students' achievement in writing at the end of the 20th century is an important indicator of whether young adults in the 21st century will have the writing skills necessary to express themselves clearly. The National Assessment of Educational Progress (NAEP), America's only ongoing survey of what students know and can do in various academic subjects, is one resource that can help inform the public about students' academic preparedness in writing.

NAEP is administered by the National Center for Education Statistics (NCES) with oversight by the National Assessment Governing Board (NAGB). In 1998, NAEP administered a writing assessment to a national sample representative of all students at grades 4, 8, and 12 and to state samples representative of all students at grade 8 in the states and other jurisdictions participating in the state-by-state assessment. The results of the assessment provide a snapshot of American students' achievement in writing.

This article presents highlights from the NAEP 1998 Writing Assessment, describing its content, major findings at the national and state levels, and students' experiences at home and in school that appear to be associated with achievement in writing. Student performance is reported as an average score based on the NAEP writing scale, which ranges from 0 to 300. The average scale score reflects the overall writing performance of a particular group of students. Student writing performance is also reported in terms of three achievement levels: *Basic*, *Proficient*, and *Advanced*. The achievement levels are performance standards adopted by NAGB as part of its statutory responsibilities. The levels are collective judgments of what students should know and be able to do for each grade tested. They are based on recommendations by broadly representative panels of classroom teachers, education specialists, and members of the general public.

As provided by law, the Commissioner of Education Statistics, upon review of a congressionally mandated evaluation of NAEP, has determined that the achievement levels are to be considered developmental and should be interpreted and used with caution. However, both the Commissioner and NAGB believe these performance standards are useful for understanding student achievement. They have been widely used by national and state officials, including the National Education Goals Panel, as a common yardstick of academic performance.

The NAEP 1998 Writing Assessment

In the 1998 writing assessment, a variety of tasks were used to engage students' interest and facilitate their best "first-draft" writing. The *Writing Framework and Specifications for the 1998 National Assessment of Educational Progress* (NAGB 1997) provided the guidelines for developing the writing assessment. This framework, developed by NAGB, represents the expertise and experience of a wide array of specialists and concerned citizens, such as writing teachers, researchers, business leaders, scholars, and policymakers.

Objectives for the assessment

The framework is based on six objectives that should guide students' development as writers:

- *Objective 1:* Students should write for a variety of purposes: narrative, informative, and persuasive.
- *Objective 2:* Students should write on a variety of tasks and for many different audiences.
- *Objective 3:* Students should write from a variety of stimulus materials and within various time constraints.
- *Objective 4:* Students should generate, draft, revise, and edit ideas and forms of expression in their writing.
- *Objective 5:* Students should display effective choices in the organization of their writing. They should include detail to illustrate and elaborate their ideas, and use appropriate conventions of written English.
- *Objective 6:* Students should value writing as a communicative activity.

Purposes for writing

The NAEP 1998 Writing Assessment measured students' performance on three types of writing: narrative, informative, and persuasive. These three broad types, or "purposes for writing," are commonly used in writing instruction, and thus were deemed most appropriate for NAEP's assessment of student achievement.

Narrative writing. Narrative writing involves the production of stories or personal essays. It encourages writers to use their creativity and powers of observation to develop stories that can capture a reader's imagination.

The narrative tasks in the 1998 writing assessment asked students to write many kinds of stories (mostly fiction, some nonfiction). Some of the tasks asked students to write in response to photographs, cartoons, poems, or stories, which were provided with the assessment.

Informative writing. Informative writing communicates information to the reader, whether it is to share knowledge or to convey messages, instructions, and ideas. It may involve reporting on events or experiences, or analyzing concepts and relationships.

The informative tasks in the 1998 writing assessment allowed students to write on specified subjects in a variety of formats, such as reports, reviews, and letters. Many of the tasks asked students to write in response to information provided with the assessment, such as newspaper articles, charts, photographs, and reported dialogues.

Persuasive writing. Persuasive writing seeks to influence the reader to take some action or bring about change. It may contain factual information, such as reasons, examples, or comparisons; however, its main purpose is not to inform, but to persuade.

The persuasive tasks in the 1998 writing assessment asked students to write letters to friends, newspaper editors, or prospective employers; to refute arguments; or to take sides in a debate. Many of the tasks asked students to respond to letters, cartoons, or arguments, which were provided with the assessment.

NAEP Writing Assessment Results for the Nation

As shown in table A, 23 percent of 4th-graders, 27 percent of 8th-graders, and 22 percent of 12th-graders were at or above *Proficient*—the level identified by NAGB as the standard all students should reach.

While table A shows the cumulative percentages of students "at or above" each achievement level, figure A shows the percentage of students who fell below the *Basic* achievement level and those within the *Basic*, *Proficient*, and *Advanced* levels. The figure makes it clear that over half of the students at each grade were within the *Basic* level of writing performance.

National Results for Selected Student Subgroups

The NAEP writing scores at each grade (4, 8, and 12) range from 0 to 300, with a national average of 150 (including both public and nonpublic school students). These scores can be used to compare various subgroups of students.

Writing performance by gender

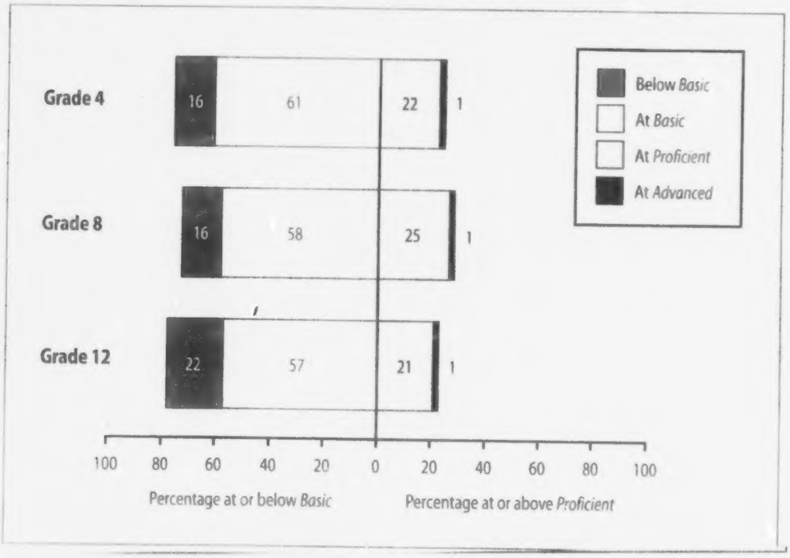
At all three grades, females had higher average scores than males. At each grade, a higher percentage of female students than male students were at or above *Proficient*. Across the three grades, between 29 and 36 percent of female students were at or above *Proficient*. In comparison, between 14 and 17 percent of male students were at or above this level.

Table A.—Percentage of students at or above the writing achievement levels: 1998

	Nation			
	Below *Basic*	At or above *Basic*	At or above *Proficient*	*Advanced*
Grade 4	16	84	23	1
Grade 8	16	84	27	1
Grade 12	22	78	22	1

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1998 Writing Assessment. (Previously published on p. 10 of the *NAEP 1998 Writing Report Card Highlights*.)

Figure A.—Percentage of students within each writing achievement-level range: 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1998 Writing Assessment. (Previously published on p. 10 of the *NAEP 1998 Writing Report Card Highlights*.)

Writing performance by race/ethnicity

At grade 4, Asian/Pacific Islander students had higher scores than white students, who, in turn, had higher scores than black, Hispanic, and American Indian students. American Indian students also scored higher than black students at grade 4. At grades 8 and 12, Asian/Pacific Islander students and white students had higher scores than black, Hispanic, and American Indian students.

Across the three grades, the percentages of students who reached or exceeded the *Proficient* achievement level were 26 to 34 percent among white students, 8 percent among black students, 10 to 11 percent among Hispanic students, 24 to 36 percent among Asian/Pacific Islander students, and 9 to 11 percent among American Indian students.

Writing performance by type of school

At all three grades, students attending nonpublic schools had higher scores than students attending public schools. Differences between the performance of students in public and nonpublic schools may be due to factors such as admission standards and the likelihood of greater parental involvement at nonpublic schools.

At each grade, a higher percentage of nonpublic school students reached or exceeded the *Proficient* level than did public school students. Across the three grades, between 35 and 44 percent of nonpublic school students were at or above the *Proficient* level of performance. In comparison, between 20 and 24 percent of public school students reached or exceeded this level.

School and Home Factors Related to Writing Achievement

What classroom activities are related to students' writing performance? Are there aspects of students' home environments that seem to encourage and support writing achievement? NAEP collects information that may help researchers, educators, and parents answer these questions. For example, it may help educators discover that their activities to support writing are shared by their colleagues across the nation. It can suggest approaches to help students become better writers, and it can provide a resource for parents seeking to support their children's success in writing.

While it is possible to study the relationship between students' writing performance and various home and school practices, it cannot be established that these practices cause a higher level of achievement in writing. The relationship that exists between writing achievement and another factor may, in fact, be caused by a complex interaction of numerous factors.

Talking about writing

Students who participated in the NAEP 1998 Writing Assessment were asked how often they talked with their teachers about their writing while they were working on a writing assignment.

At all three grades, most students said that they spoke with their teachers about what they were writing while engaged in a writing activity. Those students who said that their teachers "always" or "sometimes" spoke with them about their writing did better than the students who said that their teachers "never" did so. Furthermore, at grades 8 and 12, students who said that their teachers "always" talked with them about their writing while they were working on it had higher scores than those who reported that their teachers "sometimes" did so.

Planning to write

Research on the writing process suggests that students who have the opportunity to think about what they want to say and how best to express it in writing are more engaged with the writing task and, therefore, are more likely to express their ideas clearly. Each student participating in the 1998 writing assessment was given a brochure that discussed how to plan for and revise writing. Students were also given space in their test booklets for planning their writing.

Forty-seven percent of 4th-graders, 66 percent of 8th-graders, and 67 percent of 12th-graders planned for their response to at least one of the two tasks in the test booklet. At all three grades, students who planned their responses to both tasks had higher average scores than those who did not plan for either task or who planned for only one task.

Reading materials in the home

Young people who have a variety of reading materials in the home can learn to appreciate different kinds of reading experiences and writing styles. Furthermore, exposure to many different kinds of writing may support students' development as versatile writers. In the 1998 writing assessment, students were asked about the number and types of reading materials they had at home.

At all three grades, between 38 and 53 percent of students said they had "four" different kinds of reading materials (books, magazines, a newspaper, and an encyclopedia) at home. At all three grades, the students who said they had "four" kinds of reading materials at home had higher scores than those who said they had "three" or "two or fewer."

Discussing studies at home

Students need opportunities to discuss their schoolwork with caring family members at home. Research has documented the higher achievement of children whose families take an active role in their learning. Recognizing this, education reforms such as those embodied in Goals 2000* have sought to strengthen the relationship between parents and schools.

In the 1998 writing assessment, students were asked how often they discuss their studies with someone at home. At all three grades, most students said they discussed their studies with someone at home "at least once a week." These students had higher scores than those who said they discussed their studies at home less frequently.

Writing Performance Within States

While the average scale scores of students across the nation provide parents and educators with a broad view of how well American students are performing in writing, it is also informative to examine the writing performance of students in individual states. In 1998, in addition to the national assessment, NAEP examined the writing performance of representative samples of eighth-grade students in states and other jurisdictions that volunteered to participate in a state-level assessment.

Scale-score results for the states

Eighth-grade public school students in 35 states and 4 other jurisdictions participated in the NAEP state-level assessment. In 1998, the national average writing score for public school students was 148, and scores for students participating in the state-level assessment ranged from 124 to 165. Differences in writing performance among states and jurisdictions are most likely related to a combination of factors, including the effectiveness of an individual state's or jurisdiction's programs, economic constraints, and student demographic characteristics. Figure B shows whether each

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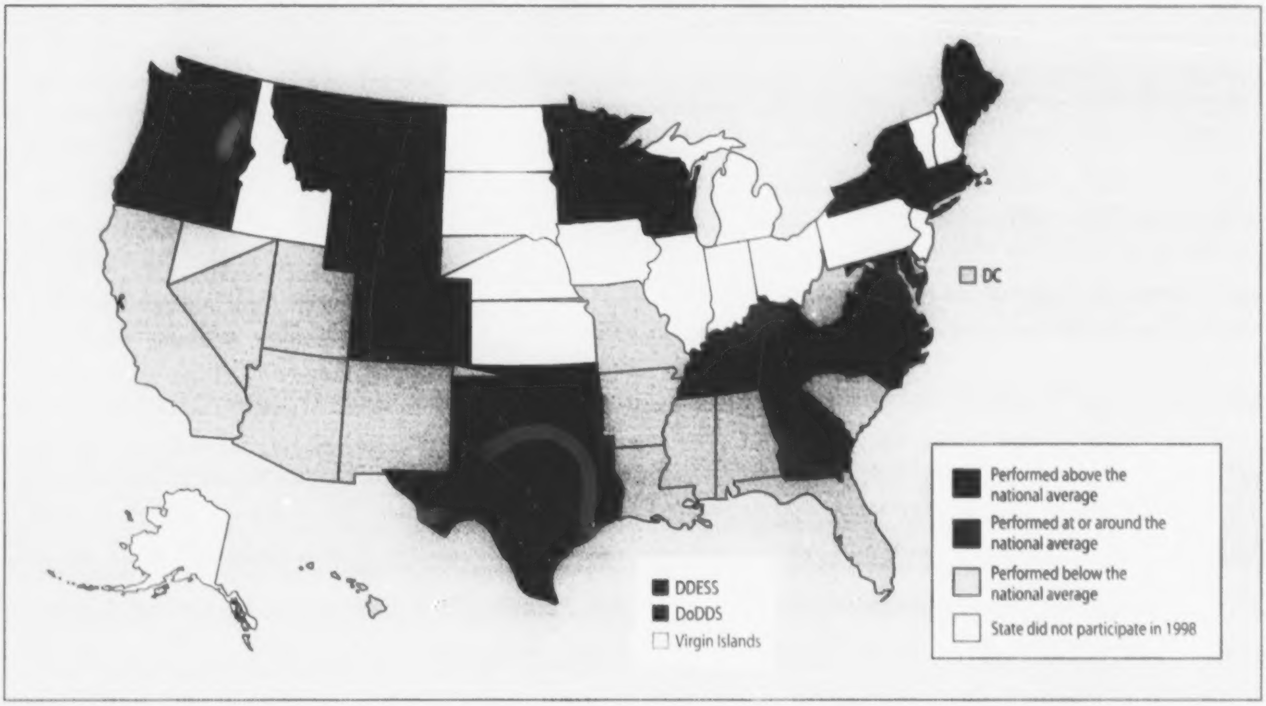
*National Education Goals were set in 1990, and eight goals for the year 2000 were codified in the Goals 2000: Educate America Act (Public Law 103-227), signed by President Clinton in 1994. Reports on the goals are published regularly by the National Education Goals Panel (e.g., NEGP 1999).

Figure B.—State writing scores of eighth-grade public school students relative to the national average: 1998


DC
DDESS
DoDDS
Virgin Islands
Performed above the national average
Performed at or around the national average
Performed below the national average
State did not participate in 1998

DDESS: Department of Defense Domestic Dependent Elementary and Secondary Schools; DoDDS: Department of Defense Dependents Schools (Overseas)

NOTE: National results are based on the national assessment sample, not on aggregated state assessment samples. Differences between states and jurisdictions may be partially explained by other factors not included in the figure.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1998 Writing Assessment. (Previously published on p. 14 of the *NAEP 1998 Writing Report Card Highlights*.)

participating state and jurisdiction scored above the national average of 148, at or around the national average, or below the national average.

Achievement-level results for the states

In 1998, across the participating states and other jurisdictions, between 47 and 66 percent of students were within the *Basic* level of performance, between 8 and 40 percent were within the *Proficient* level, and between 0 and 6 percent were within the *Advanced* level. Furthermore, across the participating states and other jurisdictions, between 61 and 91 percent of students were at or above the *Basic* level of performance, and between 9 and 44 percent were at or above the *Proficient* level.

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Data source: The National Assessment of Educational Progress (NAEP) 1998 Writing Assessment.

For technical information, see the complete report:

Greenwald, E.A., Persky, H.R., Campbell, J.R. and Mazzeo, J. (1999). *NAEP 1998 Writing Report Card for the Nation and the States* (NCES 1999–462).

For additional details about NAEP 1998 methodology, see

Allen, N.L., Donoghue, J.R., and Schoeps, T.L. (forthcoming). *The NAEP 1998 Technical Report* (NCES 2000–463).

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To obtain the complete report (NCES 1999–462), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

To obtain the Highlights brochure from which this article is excerpted (NCES 1999–464), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

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Student Musical Activities and Achievement in Music: NAEP 1997 Arts Assessment

Sheida White and Alan Vanneman

This article was originally published as a NAEPfact. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

Overview

Data from the National Assessment of Educational Progress (NAEP) 1997 Arts Assessment in Music, which covered eighth-grade students only, regardless of whether they had received instruction in music, show that student involvement in a variety of music activities—playing an instrument in particular—is positively related to student music achievement.

Introduction

In 1997, the National Center for Education Statistics (NCES) assessed arts education in the United States for the first time in almost 20 years.[1] At first glance, some findings of the assessment were surprising and disappointing to many arts educators. In music, for example, the assessment found that students attending schools where they received instruction in music three or four times a week did not necessarily outperform students attending schools where music was not taught (Persky, Sandene, and Askew 1998, 144 ff). The same was true of students attending schools where the great majority of students received instruction in music as compared to students attending schools where very few received instruction in music. (The music assessment was given to a general sample of students, regardless of whether they had received any instruction in music.)

However, a closer look at in-school instructional activities, most notably those requiring students to play a musical instrument, did show a consistent relationship to higher student achievement in music. This *NAEPfact* discusses relationships between students' achievement in music and their involvement in a variety of in- and out-of-school activities. These activities can range from students listening to music on their own to being required to play their instruments in class. Analysis of data gathered in the assessment shows a relationship between many such activities and higher student achievement in music.

The NAEP Arts Assessment

The NAEP arts assessment measured students' ability to create and perform works of art as well as to respond to existing works. For music, students were assessed on three arts processes: Creating, Performing, and Responding. In the arts assessment framework (National Assessment Governing Board 1994),

- *Creating* refers to expressing ideas and feelings in the form of an original work of art, for example, a musical improvisation.
- *Performing* refers to performing an existing work, a process that calls upon the interpretive or re-creative skills of the student.
- *Responding* refers to observing, describing, analyzing, and evaluating works of art.

In order to capture all three processes, the arts assessment exercises included Creating and Performing tasks in addition to standard paper-and-pencil tasks. These tasks, among other things, asked students to sing and play instruments, to sight-read music, and to improvise. In these tasks, students were also asked to comment in writing on their work. The Responding tasks asked students to describe, analyze, interpret, and evaluate works of art, both by writing short statements and essays and by answering multiple-choice questions.

The NAEP 1997 Music Assessment used a nationally representative sample of 2,275 eighth-grade students. All students engaged in Responding and Creating and/or Performing tasks.[2]

Student Achievement

Student performance on the arts assessment is presented in several ways. The overall summaries of results treat each of the three processes—Creating, Performing, and Responding—separately. Responding results for music are summarized on a scale that ranges from 0 to 300. Scores that fell in the bottom 25 percent of the scale were labeled "Lower Level" scores; those in the middle 50 percent were labeled "Middle Level"; and those in the top 25 percent were labeled "Upper Level." Creating and Performing results for music are not summarized using a standard NAEP scale. Instead of a scale, Creating and Performing results are presented as average percentages of the maximum possible score on exercises. These average scores represent the overall mean percentage students earned of the possible number of points for the components of Creating and Performing tasks. For example, if the maximum possible score on the Creating tasks in the music assessment was 129, and the average student had a combined score of 43, then the average percentage would be 33 (i.e., 43 is 33 percent of 129).

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[1] NCES assessed music in 1972 and 1978 and visual arts in 1975 and 1978.

[2] A total of 567 students currently engaged in a music activity (either instrumental or vocal) were given an additional Creating or Performing task, but results for this additional task are not discussed in this *NAEPfact*. For full information, see *The NAEP 1997 Arts Report Card* (Persky, Sandene, and Askew 1998).

Differences in music achievement are reported here only if they are *statistically significant*. This means that the observed differences in the samples are likely to reflect real differences in the population and are highly unlikely to have resulted from chance factors associated with sampling variability. Reporting of these differences is not intended to imply any judgment about cause and effect nor to make any judgment on the educational relevance of the differences.

Responding Scores and Students' Music Experiences

As table 1 demonstrates, student involvement in many different music activities was positively related to higher Responding scores. In fact, of the 13 activities surveyed, only one, "Take private singing lessons," did not show a positive relationship. For 8 of the 13 activities considered, Middle Level students were more likely to be engaged in the selected activity than Lower Level students. Upper Level students were more likely to be active than Lower Level students in 12 of the 13 activities, and more likely to be active than Middle Level students in 11 of the activities.

Performing and Creating Scores and In-School Music Activities

Table 2 provides data on students' in-school music activities, as they reported them, in comparison with students' Performing and Creating scores. Students were asked how often their teachers asked them to perform certain music activities.

As the table indicates, some 34 to 40 percent of eighth-grade students reported that they were not currently enrolled in music class. For each of the five activities considered, these students had lower scores than at least one group of students who were taking music. However, not all students who were taking music had higher scores than students who were not.

It is notable that students who were asked to play their instruments almost every day had higher scores than all

Table 1.—Student participation in music activities by level of performance on the Music Responding Scale

	Percentage of students		
	In the Lower Level of the scale	In the Middle Level of the scale	In the Upper Level of the scale
In-school student activities			
Play in a band	6	10*	44*†
Play in an orchestra	2	1	7*†
Sing in a chorus or choir	9	21*	35*†
Take private singing lessons	3†	1	3
Take private lessons on an instrument	3	5	25*†
Own a musical instrument	15	33*	77*†
Go with class to three or more concerts in the past year	5	10*	25*†
Out-of-school activities			
Play a musical instrument	11	20*	58*†
Play with a group, band, or orchestra	7	7	15*†
Sing in a group, chorus, or choir	10	16*	21*†
Take private lessons on a musical instrument or in singing	4	5	29*†
Listen to musical tapes, CDs, or records	79	95*	97*
Talk with family or friends about music	30	38*	52*†

*Higher than Lower Level.

†Higher than Middle Level.

How to read this table: This table gives the percentages of students scoring at the Lower (bottom 25 percent), Middle (middle 50 percent), and Upper (upper 25 percent) Levels of the Music Responding Scale who answered affirmatively to a variety of questions regarding their in-school and out-of-school activities. For example, 6 percent of those scoring in the Lower Level said they played in a band, while 10 percent of those scoring in the Middle Level, and 44 percent of those scoring in the Upper Level, said they did so.

NOTE: All tests of statistical significance were made at the .05 level with appropriate adjustments for multiple comparisons.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

Table 2.—Students' music Performing and Creating scores by involvement in in-school music activities

When you take music class in school, how often does your teacher do each of the following things?	Percentage of students[1]	Average Performing score (0–100 percent)	Average Creating score (0–100 percent)
Play music for you to listen to			
Almost every day	28	33	33
Once or twice a week	13	39*	42*†‖
Once or twice a month	10	44*‖	42*†‖
Never or hardly ever	14	35	33
I don't have music	34	29	30
Ask you to sing			
Almost every day	13	40*	42*†§
Once or twice a week	11	36	35
Once or twice a month	6	32	37
Never or hardly ever	35	36*	35
I don't have music	35	29	31
Ask you to play instruments			
Almost every day	16	53*†‡§	50*†‡§
Once or twice a week	6	38*	41*†
Once or twice a month	6	35	35
Never or hardly ever	32	31	31
I don't have music	40	27	30
Ask you to write down music			
Almost every day	5	#	39*
Once or twice a week	10	#	37*
Once or twice a month	11	#	39*
Never or hardly ever	36	#	37*
I don't have music	38	#	30
Ask you to make up your own music			
Almost every day	4	#	40
Once or twice a week	5	#	35
Once or twice a month	8	#	34
Never or hardly ever	47	#	38*
I don't have music	37	#	30

#Apply to students assigned Creating tasks only. For this reason, no data appear in the "Average Performing score" column.

*Higher than "I don't have music."

†Higher than "Never or hardly ever."

‡Higher than "Once or twice a month."

§Higher than "Once or twice a week."

‖Higher than "Almost every day."

[1] Percentages in this column may not sum to 100, due to rounding.

NOTE: All tests of statistical significance were made at the .05 level with appropriate adjustments for multiple comparisons.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

other students, for both Performing and Creating. Students whose teachers asked them to sing almost every day had higher Creating scores than all students except those whose teachers asked them to sing once or twice a month. However, in Performing, students whose teachers asked them to sing almost every day outscored only those students who did not take music; they did not outscore students who sang in class less frequently.

It is also notable that students whose teachers played music for them to listen to once or twice a month had higher scores than students whose teachers played music for them to listen to almost every day, for both Performing and Creating. These students also outscored students who did not take music.

For Creating scores only, students whose teachers played music for them to listen to once or twice a week or once or twice a month also outperformed students whose teachers never or hardly ever played music for them to listen to. Thus, for Creating scores, there is an overall pattern that students whose teachers occasionally required them to listen to music in class had higher average scores than both those students whose teachers rarely required them to listen to music and those whose teachers required them to do so almost every day.

Performing and Creating Scores and In- and Out-of-School Activities

Table 3 shows the percentages of students engaged in various in- and out-of-school music activities and their Performing and Creating scores. In every case where data were available, students who had engaged in the activity had higher scores than those who had not. There is a substantial overlap in categories for table 3 and table 1, which considers students' Responding scores. Both tables demonstrate a generally positive relationship between involvement in music activities and student achievement in music.

Relationships Among Responding and Performing and Creating Results

As table 4 demonstrates, students who scored higher on the Responding portion of the music assessment were likely to score higher on both the Performing and Creating portions of the music assessment as well. For both Performing and Creating, students who scored in the Middle Level of the Responding Scale had higher average scores than those who scored in the Lower Level, and students who scored in the Upper Level of the Responding Scale had higher average scores than those who scored in the Middle Level.

Table 3.—Students' music Performing and Creating scores and their involvement in in-school and out-of-school music activities

	Percentage of students	Average Performing score (0–100 percent)	Average Creating score (0–100 percent)
Which of the following activities do you do in school?			
Play in a band			
Yes	18	52*	50*
No	82	30	31
Play in an orchestra			
Yes	3	—	53*
No	97	33	34
Sing in a chorus or choir			
Yes	22	43*	40*
No	78	31	33
When you are NOT in school, do you ever do the following things on your own, NOT in connection with schoolwork?			
Take private lessons on a musical instrument or in singing			
Yes	11	59*	52*
No	89	31	32
Listen to a musical tape, CD, or record			
Yes	92	35*	35*
No	8	21	29
Read a book about music			
Yes	12	41*	42*
No	88	33	33
Listening to or attending musical performances:			
In the last year, how many times did your class go to a concert?			
Three or more	13	43*†	45*
Once or twice	26	37*	35*
None	61	32	32
Have you ever listened to a musical performance at school?			
Yes	77	36*	36*
No	23	24	30

*Higher than "No" or "None."

†Higher than "Once or twice."

—Sample size is insufficient to permit a reliable estimate.

NOTE: All tests of statistical significance were made at the .05 level with appropriate adjustments for multiple comparisons.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

Table 4.—Average student scores on Performing and Creating by level of performance on the Music Responding Scale

Level of performance on the Music Responding Scale	Percent correct on the Performing scale	Percent correct on the Creating scale
Lower	18	24
Middle	29*	30*
Upper	56*†	52*†

*Higher than Lower Level.

†Higher than Middle Level.

NOTE: All tests of statistical significance were made at the .05 level with appropriate adjustments for multiple comparisons.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

Conclusion

The NAEP 1997 Arts Assessment in Music confirmed what many educators would predict, that student involvement in music activities is positively related to student achievement in music. The assessment also found a positive relationship between students responding to music and students "doing" music—creating and performing.

These findings are not demonstrations of causal relationships. For example, schools that initiate a requirement that students play their instruments almost every day may have a more extensive music program than most schools; or they may be located in higher income areas, where it is not unreasonable to ask that every student purchase an inexpensive instrument or where the school can afford to provide every student with an instrument. A wide variety of factors influence student achievement in any subject. But the findings highlighted in this *NAEPfact* can have relevance to future research and practice in music education.

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Data source: The National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

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Student Subgroup Achievement on the NAEP 1997 Arts Assessment

Sheida White and Alan Vanneman

This article was originally published as a NAEPfact. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

Overview

Data from the National Assessment of Educational Progress (NAEP) 1997 Arts Assessment for eighth-grade students show that female students outperformed male students in every category of assessment for all three art forms assessed—music, theatre, and visual arts. In contrast to assessments in other subjects, nonpublic school students rarely outperformed public school students. Asian and white students had higher scores than black and Hispanic students in many but not all categories of the assessment.

Introduction

In 1997, the National Center for Education Statistics (NCES) assessed art education in the United States for the first time in almost 20 years.[1] This *NAEPfact* discusses achievement of student subgroups for all three arts assessed—music, theatre, and visual arts. (A planned assessment of dance was not possible because the number of schools offering a significant program in dance was so small that NCES could not identify a sample large enough to produce statistically valid results.) Analysis of student subgroup achievement compares achievement by gender, race/ethnicity, and type of school attended (public or nonpublic).

The NAEP Arts Assessment

The NAEP arts assessment measured students' ability to create and perform works of art as well as to respond to existing works. For each art form, students were assessed on at least two of the three arts processes: Creating, Performing, and Responding. In the arts assessment framework (National Assessment Governing Board 1994),

- *Creating* refers to expressing ideas and feelings in the form of an original work of art, for example, a piece of music, a dramatic improvisation, or a sculpture.
- *Performing* refers to performing an existing work, a process that calls upon the interpretive or re-creative skills of the student.
- *Responding* refers to observing, describing, analyzing, and evaluating works of art.

In order to capture all three processes, the arts assessment exercises included Creating and Performing tasks in addition to standard paper-and-pencil tasks. The Creating and Performing tasks, among other things, asked students to sing, create music, act in theatrical improvisations, work with various media to create works of visual art, and to perform and improvise dances.[2] In these tasks, students were also asked to evaluate their own work in written form. The Responding tasks, which used the paper-and-pencil format, asked students to describe, analyze, interpret, and evaluate works of art, both by writing short statements and essays and by answering multiple-choice questions. Students were given a series of related tasks (Creating, Responding, or Performing), arranged in blocks from 25 to 50 minutes in length.

The Student Samples

The NAEP 1997 Arts Assessment was conducted nationally at grade 8. For music and visual arts, representative samples of public and nonpublic school students were assessed. Students were assessed regardless of whether they had any training in music or the visual arts. In theatre, on the other hand, NCES used a targeted sample, confined to students who had accumulated 30 hours of theatre classes by the end of the 1996–97 school year and who were attending schools offering at least 44 classroom hours of a theatre course per semester and offering courses including more than the history or literature of theatre.

The decision to assess a targeted sample of students for theatre was made based on the results of the 1995 NAEP field tests at grades 4 and 8. Field-test data indicated that small percentages of students were exposed to comprehensive theatre programs in the nation's schools. A general or untargeted assessment would not assess enough students with significant instruction in theatre to provide statistically significant results. NCES decided to use a targeted assessment for theatre in order to obtain meaningful data on the full range of student performance in theatre. The music sample consisted of 2,275 students, while the visual arts sample had 2,999 students and the theatre sample, 1,386 students.

When making comparisons between the theatre results and the music and visual arts results, the reader should keep in mind the fact that the theatre sample was not a random national sample. To underscore the differences in samples, theatre results are presented after music and visual arts results.

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[1] NCES assessed music in 1972 and 1978 and visual arts in 1975 and 1978.

[2] To provide an understanding of the assessment that was planned for dance, the dance assessment tasks are included in *The NAEP 1997 Arts Report Card* (Persky, Sandene, and Askew 1998).

Student Achievement

Student performance on the arts assessment is presented in several ways. The overall summaries of results treat each of the three processes—Creating, Performing, and Responding—separately. Responding results within music, theatre, and visual arts are summarized on a scale ranging from 0 to 300.

Creating and Performing results are not summarized using a standard NAEP scale. Instead of a scale, Creating and Performing results are presented as average percentages of the maximum possible score on tasks. These average scores represent the overall mean percentage students earned of the possible number of points for the components of Creating and Performing tasks. For example, if the maximum possible score on the Creating tasks in the visual arts was 129, and the average student had a combined score of 43, then the average percentage would be 33 (i.e., 43 is 33 percent of 129).

The NAEP arts framework concluded that assessment of the Creating and Performing processes would be different for each of the three arts assessed, due to differences in the nature of these arts. Students who participated in music were assessed in both Creating and Performing. Those assessed in the visual arts were assessed in Creating only, because Performing is not usually part of the visual arts. Students assessed in theatre were assessed in a combined process, Creating/Performing, because performance in the theatre almost always involves creative activities as well.

Differences in achievement are reported here only if they are *statistically significant*. This means that the observed differences in the samples are likely to reflect real differences in the population and are highly unlikely to have resulted from chance factors associated with sampling variability. Reporting of these differences is not intended to imply any causal relationships nor to make any judgment on the educational relevance of the differences.

Readers are cautioned against making simplistic inferences about differences in performance among different groups of students. Average performance differences may be partly related to socioeconomic or sociological factors, such as parental education or parental involvement. More in-depth investigations would be required to produce a clearer picture of performance differences by subgroup.

Gender

Differences in achievement by gender were pronounced. Female students outperformed male students in every category, for all three arts assessed (table 1). Female students have also outperformed males in NAEP

Table 1.—Eighth-grade students' arts achievement scores by gender

	Average Creating[1] score (0–100 percent)	Average Performing score (0–100 percent)	Average Responding scale score (0–300)
Music			
National average	34	34	150
Males	32*	27*	140*
Females	37	40	160
Visual arts			
National average	43	(✪)	150
Males	42*	(✪)	146*
Females	45	(✪)	154
Theatre			
National average	49	(✪)	150
Males	46*	(✪)	140*
Females	52	(✪)	158

✪Not applicable.

*Scores lower than those achieved by female students.

[1] "Creating/Performing" for theatre only.

NOTE: All tests of statistical significance were made at the .05 level with appropriate adjustments for multiple comparisons.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

assessments in two other subjects, reading and writing, at the 4th, 8th, and 12th grades (Applebee et al. 1994; Campbell et al. 1996).

Race/Ethnicity

Differences in achievement by race/ethnicity were also common (table 2). Whites outperformed Hispanics in every category for all three arts assessed and outperformed blacks in every category except music Creating. Asians outperformed Hispanics and blacks in music Responding and visual arts Responding and outperformed them in visual arts Creating as well. Because the samples for Pacific Islanders and American Indians were too small to provide statistically valid data, these subgroups are omitted from table 2.

Type of School

Approximately 90 percent of the nation's grade 8 students attend public schools. The remainder attend Catholic and other private schools (that is, nonpublic schools). In past NAEP assessments across a variety of subjects, students attending nonpublic schools have consistently outperformed students attending public schools.

That pattern was not found in the 1997 arts assessment (table 3). Nonpublic school students had higher scores in only one category, visual arts Responding. For visual arts Creating, and for all music categories, scores for public and nonpublic students were similar. No comparison was possible for theatre, because the nonpublic school sample was too small.

Table 2.—Eighth-grade students' arts achievement scores by race/ethnicity

	Average Creating[1] score (0–100 percent)	Average Performing score (0–100 percent)	Average Responding scale score (0–300)
Music			
All students	34	34	150
Students who indicated their race/ethnicity as …			
White	36	36	158
Black	34	30*	130*†
Hispanic	29*	24*	127*†
Asian	31	—	152
Visual arts			
All students	43	(✪)	150
Students who indicated their race/ethnicity as …			
White	46	(✪)	159
Black	37*†	(✪)	124*†
Hispanic	38*†	(✪)	128*†
Asian	45	(✪)	153
Theatre			
National average	49	(✪)	150
Students who indicated their race/ethnicity as …			
White	52	(✪)	159
Black	39*	(✪)	120*
Hispanic	44*	(✪)	139*
Asian	—	(✪)	—

✪Not applicable.

*Scores lower than those achieved by white students.

†Scores lower than those achieved by Asian students.

—Sample size is insufficient to permit a reliable estimate.

[1] "Creating/Performing" for theatre only.

NOTE: All tests of statistical significance were made at the .05 level with appropriate adjustments for multiple comparisons.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

Table 3.—Eighth-grade students' arts achievement scores by type of school attended

	Average Creating[1] score (0–100 percent)	Average Performing score (0–100 percent)	Average Responding scale score (0–300)
Music			
National average	34	34	150
Public school students	34	34	149
Nonpublic school students	37	33	158
Visual arts			
National average	43	(⊙)	150
Public school students	43	(⊙)	148*
Nonpublic school students	44	(⊙)	167
Theatre			
National average	49	(⊙)	150
Public school students	48	(⊙)	146
Nonpublic school students	—	(⊙)	—

⊙Not applicable.

*Scores lower than those achieved by nonpublic school students.

—Sample size is insufficient to permit a reliable estimate.

[1] "Creating/Performing" for theatre only.

NOTE: All tests of statistical significance were made at the .05 level with appropriate adjustments for multiple comparisons.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

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Data source: The National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

For technical information, see

Allen, N., Swinton, S., and Schoeps, T. (forthcoming). *The NAEP 1997 Arts Analysis Technical Report* (NCES 2000–486).

Persky, H. (forthcoming). *The NAEP Arts Process Report: The NAEP 1995 and 1997 Arts Field Test* (NCES 2000–485).

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To obtain this NAEPfact (NCES 1999–481), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Frequency of Arts Instruction for Students

Sheida White and Alan Vanneman

This article was originally published as a NAEPfact. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

This *NAEPfact* discusses data from the NAEP 1997 Arts Assessment on the extent and availability of instruction in four arts: dance, music, theatre, and the visual arts. These data, obtained from school administrators, indicate that while extensive programs in music and visual arts instruction for eighth-graders are well established in most schools, extensive programs for either theatre or dance are uncommon. "Extensive instruction" is defined as providing instruction in a subject to the typical student at least three or four times a week.

In 1997, the National Center for Education Statistics (NCES) assessed arts education in the United States for the first time in almost 20 years.* Originally, NCES planned to assess student achievement in dance, music, theatre, and the visual arts in grade 8, using a nationally representative sample for each. However, the actual assessment used nationally representative samples for music and the visual arts only. Due to the limited number of schools offering a significant program in theatre, NCES used a targeted sample for theatre. Schools offering at least 44 classroom hours of a theatre course per semester, and offering courses including more than the history or literature of theatre, were identified for the sample. In these schools, students who had accumulated 30 hours of theatre classes by the end of the 1996–97 school year were selected to take the theatre assessment. NCES conducted no assessment for dance at all, because the number of schools offering a significant program in dance was so small that obtaining even a targeted sample was not feasible. Data reported in this *NAEPfact* for dance, theatre, and visual arts are taken from the visual arts sample. Music data are taken from the music sample.

As table 1 indicates, only 3 percent of the nation's eighth-graders attend schools that reported the typical eighth-grader receives instruction in dance at least three or four times a week. In contrast, 52 percent of eighth-graders attend schools where the typical eighth-grader receives instruction in visual arts at least three or four times a week, and 43 percent of eighth-graders attend schools offering this level of instruction in music. For theatre, the comparable figure is 10 percent, well below the figures for music and visual arts and similar to the figure for dance. Eighty percent of eighth-graders attend schools that offer no instruction in dance for eighth-graders, and 74 percent attend schools that offer no instruction in theatre, compared to 17 percent who attend schools that offer them no instruction in visual arts and 9 percent who attend schools that offer them no instruction in music.

Data source: The National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

For technical information, see

Allen, N., Swinton, S., and Schoeps, T. (forthcoming). *The NAEP 1997 Arts Analysis Technical Report* (NCES 2000–486).

Persky, H. (forthcoming). *The NAEP Arts Process Report: The NAEP 1995 and 1997 Arts Field Test* (NCES 2000–485).

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To obtain this NAEPfact (NCES 1999–510), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

Table 1.—Schools' reports on the frequency with which their eighth-grade students receive instruction in the arts

How often does a typical eighth-grade student in your school receive instruction in each of the following subjects?	Percentage of students			
	At least 3 or 4 times a week	Once or twice a week	Less than once a week	Subject not taught
Dance	3	4	13	80
Music	43	38	10	9
Theatre	10	7	8	74
Visual arts	52	25	5	17

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1997 Arts Assessment.

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*NCES assessed music in 1972 and 1978 and visual arts in 1975 and 1978.

Students Who Took Advanced Placement (AP) Examinations

This article was originally published as an Indicator of the Month, taken from* The Condition of Education: 1999*. The universe data are from the College Board's* National Summary Reports *on the Advanced Placement program; the sample survey data are from the October Current Population Survey (CPS), conducted by the U.S. Census Bureau.

The Advanced Placement (AP) program is associated with a demanding academic curriculum and illustrates the desire of high schools to offer college-level courses to high school students. By participating in the AP program, high school students may acquire college credit for their knowledge of college-level subjects. The number of students per 1,000 12th-graders who participated in AP examinations each year shows the level of importance that students, schools, and colleges place on the AP program and how that importance has changed over time.

- Between 1984 and 1997, the number of students who took AP examinations increased dramatically, rising from 50 to 131 students per 1,000 12th-graders (table 1a and figure 1a). The number of examinees increased for both sexes and all racial/ethnic groups during this period.
- In 1984, equal proportions of male and female students took AP examinations (table 1a). Between 1984 and 1997, the number of females who took the examinations rose at a faster rate than did the number of males who took the examinations. In 1997, 145 females compared with 117 males per 1,000 12th-graders took AP examinations.
- In 1997, whites were more likely than blacks or Hispanics to take AP examinations in all subject areas, with the exception of foreign languages (table 1b). Hispanics were at least three times as likely to take a foreign language AP examination as whites.

Table 1a.—Number of U.S. students who took AP examinations (per 1,000 12th-graders), by sex and race/ethnicity: 1984–97

Sex and race/ ethnicity	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total[1]	50	59	64	66	81	88	100	103	109	117	115	125	131	131
Sex														
Male	50	61	65	68	76	86	101	96	102	108	101	111	117	117
Female	50	58	63	65	85	90	98	111	117	127	129	140	144	145
Race/ethnicity														
White	48	60	62	63	82	92	103	107	112	115	116	125	133	132
Black	8	11	12	13	21	20	26	25	26	31	32	37	32	37
Hispanic	24	21	27	30	48	54	54	67	68	80	63	75	74	85

Table 1b.—Number of AP examinations taken in the United States and the number of examinations with scores of 3 or higher (per 1,000 12th-graders), by subject area, sex, and race/ethnicity: 1997

	Number of AP examinations taken						Number of examinations with scores of 3 or higher					
Sex and race/ ethnicity	Social studies	English	Foreign language	Calculus	Computer science	Science	Social studies	English	Foreign language	Calculus	Computer science	Science
Total[1]	59	55	17	33	3	35	35	38	12	20	1	23
Sex[2]												
Male	62	42	13	36	5	41	40	28	9	24	3	28
Female	70	70	23	30	1	34	40	48	17	17	0	20
Race/ethnicity												
White	61	58	12	33	2	34	38	41	7	21	1	22
Black	15	17	3	7	1	8	5	6	1	2	0	2
Hispanic	26	27	41	12	1	12	11	12	36	6	0	5

[1] Included in the total but not shown separately are students from other racial/ethnic groups.

[2] The number of examinations taken by males and females includes a small number of examinations taken by 9th-graders, 10th-graders, college students, and others (9 percent of all students who took AP examinations in 1997).

NOTE: Includes all participation by 11th- and 12th-graders. Included in this analysis are students who participated in the United States only. Students scoring 3 or higher on an AP examination usually receive college credit. Since, on average, AP candidates take more than one examination, there is not a 1:1 ratio between candidates and examinations.

SOURCE: The College Board, Advanced Placement Program, *National Summary Reports* (Copyright © 1984–97 by the College Entrance Examination Board. All rights reserved); and U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1984–97.

Figure 1a.—Number of U.S. students who took AP examinations: 1984–97

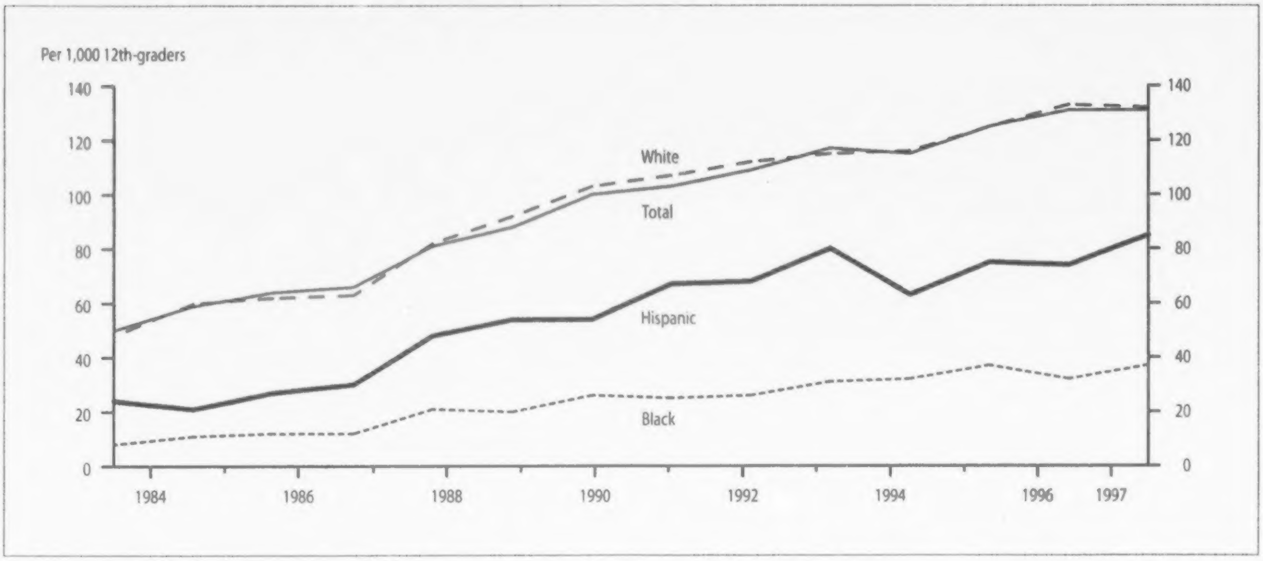


Figure 1b.—Number of AP examinations taken in the United States: 1997

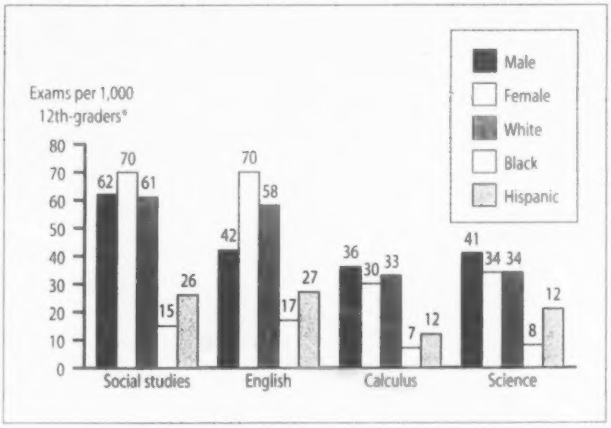
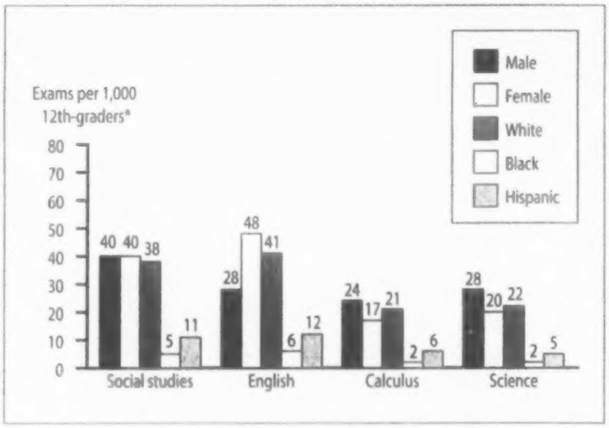


Figure 1c.—Number of examinations with scores of 3 or higher in the United States: 1997



*The number of examinations taken by males and females includes a small number of examinations taken by 9th-graders, 10th-graders, college students, and others (9 percent of all students who took AP examinations in 1997).

NOTE: Includes all participation by 11th- and 12th-graders. Included in this analysis are students who participated in the United States only. Students scoring 3 or higher on an AP examination usually receive college credit. Since, on average, AP candidates take more than one examination, there is not a 1:1 ratio between candidates and examinations.

SOURCE: The College Board, Advanced Placement Program, *National Summary Reports* (Copyright © 1984–97 by the College Entrance Examination Board. All rights reserved); and U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1984–97.

Data sources: The College Board, Advanced Placement Program, *National Summary Reports*, 1984–97; and U.S. Census Bureau, Current Population Survey (CPS), October 1984–97.

For technical information, *see*

National Center for Education Statistics. (1999). *The Condition of Education: 1999* (NCES 1999–022).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1999 (http://nces.ed.gov/pubs99/condition99)*, or
- volume 2 of the printed version (forthcoming): *The Condition of Education: 1999 Supplemental and Standard Error Tables* (NCES 2000–016).

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Students Who Prepare for College and a Vocation

Lisa Hudson and David Hurst

This article was originally published as an Issue Brief. The sample survey data are from High School and Beyond (HS&B), the National Assessment of Educational Progress (NAEP), and the National Education Longitudinal Study of 1988 (NELS:88).

High schools have traditionally focused on preparing students for entry-level jobs *or* for postsecondary education. Recently, federal legislation (e.g., the 1990 and 1998 Perkins Acts) has encouraged a more integrated approach for all students, one that maintains college entry as a viable option while also providing a stronger foundation in work skills and applications. One group of students whose high school course of study may reflect these changes are those who complete both a vocational and a college preparatory curriculum. Currently, little is known about this small group of students. This issue brief focuses on these students, examining their vocational course taking, academic achievement in high school, and postsecondary participation.

Student Participation in Vocational Education and a College Preparatory Curriculum

For this issue brief, public high school graduates were categorized into four curriculum groups: college preparatory only, vocational concentration only, both vocational concentration and college preparatory, and general preparation. *College preparatory* graduates completed a course of study that was consistent with the prevailing entrance requirements at public 4-year colleges.[1] *Vocational concentrators* completed 3 or more credits in a single occupational program area (such as business). Of particular interest for this issue brief are the students who met *both* the college preparatory and vocational concentrator criteria. *General preparation* students met neither the vocational nor the college preparatory requirements.

Between 1982 and 1994, there was an increase in the percentage of students completing a college preparatory curriculum and a decrease in the percentage completing a vocational concentration (table 1). Reflecting the general trend toward more college preparatory coursework, the percentage of graduates completing *both* a vocational concentration and a college preparatory curriculum increased from 0.6 percent in 1982 to 4.5 percent in 1994. Among all high school graduates who completed a college preparatory curriculum, the percentage who also completed a vocational concentration increased from 7 percent in 1982 to 12 percent in 1994; among all graduates who completed a vocational concentration, the percentage who also completed a college preparatory curriculum increased ninefold, from 2 percent in 1982 to 18 percent in 1994 (not shown in a table).

Within specific vocational areas, however, students were not equally likely to have completed a college preparatory curriculum. High school graduates who concentrated in food service and hospitality were less likely than the average vocational concentrator to have also completed a college preparatory curriculum, while students concentrating in technology and communications or in business were more likely than the average vocational concentrator to have also completed a college preparatory curriculum (figure 1). In fact, *43 percent* of the graduates who concentrated in technology and communications also completed a

Table 1.—Percentage distribution of public high school graduates according to curriculum specialization in high school: 1982, 1990, and 1994

Curriculum specialization	1982	1990	1994
Total	100.0	100.0	100.0
College preparatory only	8.1	25.9	32.2
Vocational concentration only	33.1	25.0	20.9
Both vocational concentration and college preparatory	0.6	2.8	4.5
Other/general	58.2	46.3	42.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, (forthcoming) *Vocational Education in the United States: Toward the Year 2000* (NCES 2000–029).

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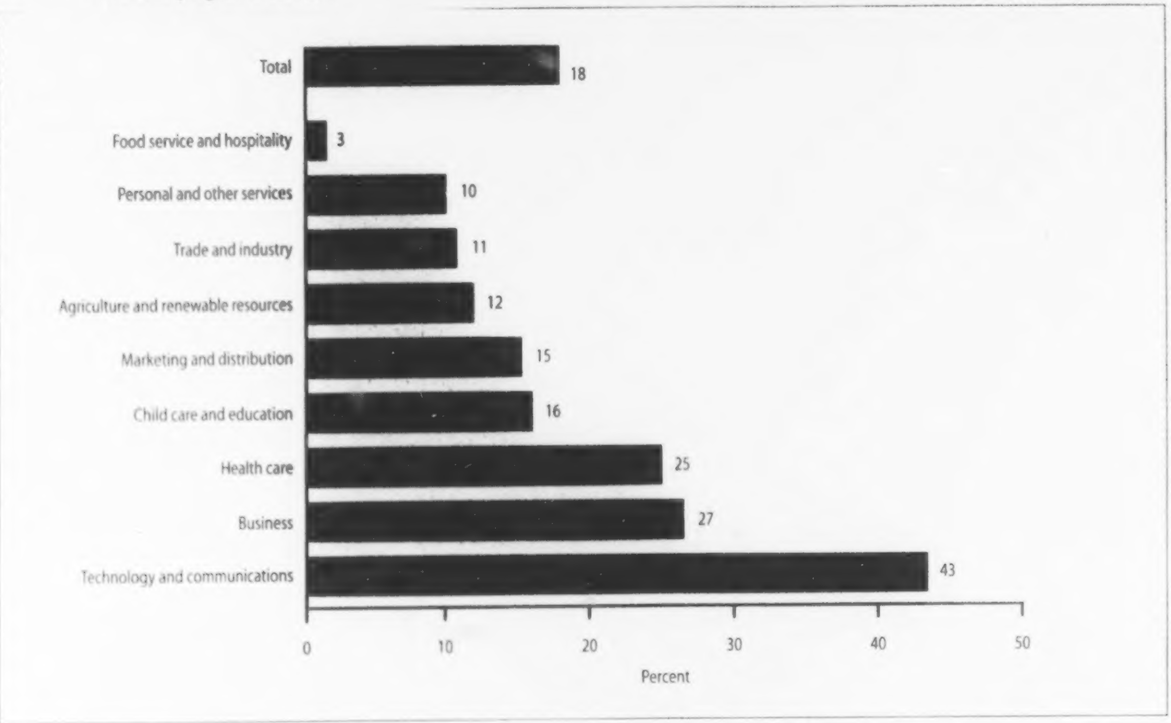
[1] This included 4 credits in English; 3 credits in mathematics at the algebra 1 level or higher; 2 credits in biology, chemistry, and/or physics; 2 credits in social studies with at least 1 credit in U.S. or world history; and 2 credits in a single foreign language.

Figure 1.—Percentage of public high school graduates with a vocational concentration who also completed a college preparatory curriculum, by vocational program area: 1994



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), High School Transcript Study, 1994.

college preparatory curriculum.[2] We do not know enough about technology/communications and business programs to say what about them may particularly attract college preparatory students. But we do know that these are the two vocational program areas in which computers are most extensively used (Office of Educational Research and Improvement 1994, 93). This "high-tech" focus could increase the appeal of these programs to a broader range of students.

Achievement Test Gains

Table 2 compares the test-score gains of students in the different curriculum groups between 8th and 12th grade. To partially control for differences in initial achievement levels, the test-score gains are grouped according to the students' 8th-grade test quartile. The test-score gains for students who completed both a vocational concentration and a college preparatory curriculum were statistically indistinguishable from the gains for those who completed a college preparatory curriculum only, and these students generally outperformed their peers who focused on a vocational concentration only. For instance, among students whose 8th-grade mathematics scores were in the middle two quartiles, those who completed a vocational concentration and a college preparatory curriculum gained an average of 27 points on the mathematics test between 8th and 12th grade. Students completing the college preparatory curriculum only made similar gains (29 points), while the average academic gain of those who had a vocational concentration only was lower (22 points).

Postsecondary Participation Rates

High school graduates who complete both a vocational concentration and a college preparatory curriculum may do so in an effort to keep their education and employment options open. These students should be prepared to enter a job in the occupational field in which they took vocational

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[2] In the current NCES secondary school course taxonomy, all computer courses are classified as vocational within the technology and communications program area. In earlier taxonomies, computer classes taught in a mathematics department were classified as academic.

Table 2.—Average test-score gains between 8th and 12th grade in mathematics and reading for 1992 public high school graduates according to 8th-grade mathematics and reading test-score quartiles, by curriculum specialization in high school

	Lowest quartile		Middle two quartiles		Highest quartile	
Curriculum specialization	Mathematics	Reading	Mathematics	Reading	Mathematics	Reading
Total	20.8	16.6	25.1	19.5	29.2	23.0
College preparatory only	27.6	19.9	29.2	21.9	30.5	24.4
Vocational concentration only	19.0	15.5	22.3	17.6	26.4	19.9
Both vocational concentration and college preparatory	—	19.9	27.4	20.5	29.8	23.6
Other/general	20.7	16.7	24.3	19.0	27.5	21.7

—Too few sample observations for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, (forthcoming) *Vocational Education in the United States: Toward the Year 2000* (NCES 2000-029). The achievement tests were conducted as part of the National Education Longitudinal Study of 1988 (NELS:88/92).

courses or to enroll in a postsecondary institution. However, based on their enrollments 2 years after graduation, most of these students appear to be college bound.

Among 1992 public high school graduates, those who completed a vocational concentration and a college preparatory curriculum were about as likely to have enrolled in a postsecondary institution by 1994 as their exclusively college preparatory peers (90 and 94 percent, respectively), and much more likely to have enrolled than students who completed a vocational concentration only (52 percent) or who had a general education preparation (70 percent) (table 3).

The public 4-year enrollment rates of high school graduates who completed both a vocational concentration and a college preparatory curriculum were also similar to those of high school graduates who completed a college preparatory curriculum only (57 and 54 percent). These public 4-year enrollment rates were higher than those for students who completed a vocational concentration only (24 percent) or had a general education preparation (34 percent). High school graduates who completed both a vocational concentration and a college preparatory curriculum were also about as likely as college preparatory-only graduates to enroll in a public 2-year institution and were less likely to do so than students who completed a vocational concentration only or who had a general education preparation.

Conclusion

The percentage of high school graduates who complete *both* a vocational concentration and a college preparatory curriculum is small, but increased markedly between 1982 and 1994. High school graduates with concentrations in vocational areas that use computers most extensively, such as business and technology/communications, generally appeared to be the most likely to have also completed a college preparatory curriculum. The academic achievement gains and postsecondary participation rates of high school graduates who completed both a vocational concentration and a college preparatory curriculum were similar to those of students who completed a college preparatory curriculum only, and generally higher than those of students who completed a vocational concentration only.

While students who complete both a vocational concentration and a college preparatory curriculum tend to be college bound, these findings suggest that they may increasingly find it useful to take courses in a vocational field. At the same time, other analyses have found that the academic course taking of all vocational concentrators has increased (Levesque et al. forthcoming). These course-taking trends suggest that students are increasingly integrating vocational and academic learning at the course level, and that students in the high-tech fields of technology/communications and business are particularly likely to follow the broader course of study envisioned by recent federal legislation.

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Office of Educational Research and Improvement. (1994). *National Assessment of Vocational Education Final Report, Volume II: Participation in and Quality of Vocational Education.* U.S. Department of Education. Washington, DC: Author.

Table 3.—Percentage of 1992 public high school graduates enrolled in a postsecondary institution by 1994, and of those enrolled, percentage distribution according to type of first institution, by curriculum specialization in high school

		Of those enrolled, type of first institution			
Curriculum specialization	Enrolled	Public 4-year	Private, not-for-profit 4-year	Public 2-year	Other*
Total	74.3	41.0	17.5	35.5	6.1
College preparatory only	93.6	53.8	26.7	17.3	2.1
Vocational concentration only	51.8	23.7	6.5	57.0	12.8
Both vocational concentration and college preparatory	89.9	57.1	15.5	23.7	3.6
Other/general	70.3	33.5	13.0	46.1	7.4

*Includes private, not-for-profit 2-year; public vocational/technical; and private, for-profit institutions.

NOTE: Percentages may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, (forthcoming) *Vocational Education in the United States: Toward the Year 2000* (NCES 2000–029).

Data sources: High School and Beyond (HS&B), Sophomore Cohort, High School Transcript Study, 1982; National Assessment of Educational Progress (NAEP), High School Transcript Study, 1990 and 1994; and National Education Longitudinal Study of 1988, Second Follow-up and High School Transcript Study (NELS:88/92).

For technical information, see the following report:

Levesque, K., Lauen, D., Teitelbaum, P., Alt, M., and Librera, S. (forthcoming). *Vocational Education in the United States: Toward the Year 2000* (NCES 2000–029).

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Predicting the Need for Newly Hired Teachers in the United States to 2008–09

William J. Hussar

***This article was excerpted from the Research and Development Report of the same name. The sample survey and universe data are from the NCES Schools and Staffing Survey (SASS), Teacher Follow-up Survey (TFS), and Common Core of Data (CCD), as well as from the NCES report* Projections of Education Statistics to 2008.**

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- Share studies and research that are developmental in nature.
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These reports present results or discussions that do not reach definitive conclusions at this point in time, either because the data are tentative, the methodology is new and developing, or the topic is one on which there are divergent views. Therefore, the techniques and inferences made from the data are tentative and are subject to revision.

Introduction

An increased need for newly hired teachers is expected over the next decade. Depending on the assumptions made, for example, this report projects that from 1.7 million to 2.7 million newly hired public school teachers will be needed by 2008–09. The report examines a model for projecting the need for newly hired teachers in both public and private schools and discusses results based on the model.

Background

Each year, over 150,000 public school teachers are hired to meet the ongoing demands of replacing teachers who retire or who have left the profession, filling new positions in growing school districts, or addressing special needs or meeting new requirements (table A). In addition to these extensive ongoing demands for additions to the teaching force, many schools and school districts have faced the prospect of a wave of retirements as the large numbers of teachers hired during the baby boom enrollment years approach retirement age.

As a group, elementary and secondary teachers are significantly older than the general labor force. The median age of public school teachers in 1993–94 was 44, compared with a median age of 38 for all workers in October 1993 (Bureau of the Census 1993). The burden of replacing large numbers of retiring teachers comes at a particularly challenging time, as enrollments in elementary and secondary schools are projected to set records each year well into the next decade (Gerald and Hussar 1998). Over the next 10 years, an unusually large need for newly hired teachers is expected, both to replace teachers as they retire and to meet the needs of increasing enrollments. These newly hired teachers will include both people who are new to the profession and those who are returning to teaching after some time away from the profession.

Content of this report

Using an algebraic model based on teacher demographic data, this report examines the need for newly hired teachers for the period from 1998–99 to 2008–09. The model is used to predict the impact of the existing age distribution on the composition of the teaching force and to estimate the number of newly hired teachers that will be needed over the forecast period.

Several alternative projections are produced for the number of newly hired school teachers in both public and private schools at the national level. The alternative projections are based on differing assumptions concerning the rates at which teachers of various ages will continue teaching from one year to the next and the total number of teachers that will be needed each year.

One key assumption of this analysis is that continuation rates of teachers, by age group, remain constant over time. This assumption is required as there are not enough observations to develop an econometric model for continuation rates. A sensitivity analysis of this assumption was conducted by examining results using three different continuation rates. Similarly, the report examines results using three different scenarios for total number of teachers.

The report does not analyze the issue of supply relative to demand of teachers. Instead, it is assumed that there will be enough supply to meet the demand, which reflects historical precedent. However, the report does include some discussion of how supply and demand forces might affect the results.

Table A.—Full-time-equivalent (FTE) teachers, newly hired FTE teachers, and the percentage of FTE teachers that are newly hired, by control: 1988–89, 1991–92, and 1994–95

	Number (in thousands)		Percent
	Teachers	Newly hired teachers	Newly hired teachers
Public school teachers			
1988–89[1]	2,323	174	7.5
1991–92[1]	2,432	156	6.4
1994–95[2]	2,552	220	8.6
Private school teachers			
1988–89[1]	345	38	10.9
1991–92[1]	355	43	12.2
1994–95[2]	374	56	15.0

[1] The number of newly hired public school teachers was calculated by (1) using that year's Teacher Follow-up Survey (TFS) for the number of people who had been either full-time or part-time public school teachers the previous year and who had left teaching in public schools; (2) multiplying that number by the previous year's ratio of FTE public school teachers to full-time and part-time public school teachers; and (3) adding that number to the net change in FTE public school teachers. The number of newly hired private school teachers was calculated using a similar method.

[2] The number of newly hired public school teachers was calculated by (1) for each age, multiplying the number of full-time and part-time teachers from the 1993–94 Schools and Staffing Survey (SASS) by 1 minus the age-specific continuation rate from the 1994–95 TFS; (2) summing those numbers by age; (3) multiplying that number by the previous year's ratio of FTE public school teachers to full-time and part-time public school teachers; and then (4) adding that number to the net change in FTE public school teachers. The number of newly hired private school teachers was calculated using a similar method.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Schools and Staffing Survey (SASS), 1993–94; Teacher Follow-up Survey (TFS), 1988–89, 1991–92, and 1994–95; and unpublished data tabulations. (Originally published as table 1 on p. 29 of the complete report from which this article is excerpted.)

The Newly Hired Teachers Model

The Newly Hired Teachers Model projects the total number of newly hired teachers that will be needed over time to replace teachers leaving the profession because of retirement and other reasons, as well as to instruct additional students that are expected to enter the system.

The key component of this model is the aging of the teacher force over time, based on the counts of teachers of each age from the 1993–94 Schools and Staffing Survey (SASS). The model estimates the number of continuing teachers, by age, through the use of age-specific continuation rates from SASS. Each year, the model brings just enough newly hired teachers into the teaching force so that the sum of the continuing teachers and the newly hired teachers equals a projected number for total teachers. Calculating the number of newly hired teachers (new teacher hires) summed over the forecast period is the focus of this study.

Data Sources and Assumptions

The Newly Hired Teachers Model requires four data items: (1) the number of teachers by age (age distribution) for a recent year; (2) the total number of teachers for each year under study, including both historical years and forecast years; (3) an estimate of the continuation rate for each age; and (4) an estimate of the age distribution of the newly hired teachers. The main sources for these data are the 1993–94 SASS and the 1994–95 Teacher Follow-up Survey (TFS), although other sources such as the Common Core of Data (CCD) and *Projections of Education Statistics to 2008* (Gerald and Hussar 1998) are used as well.

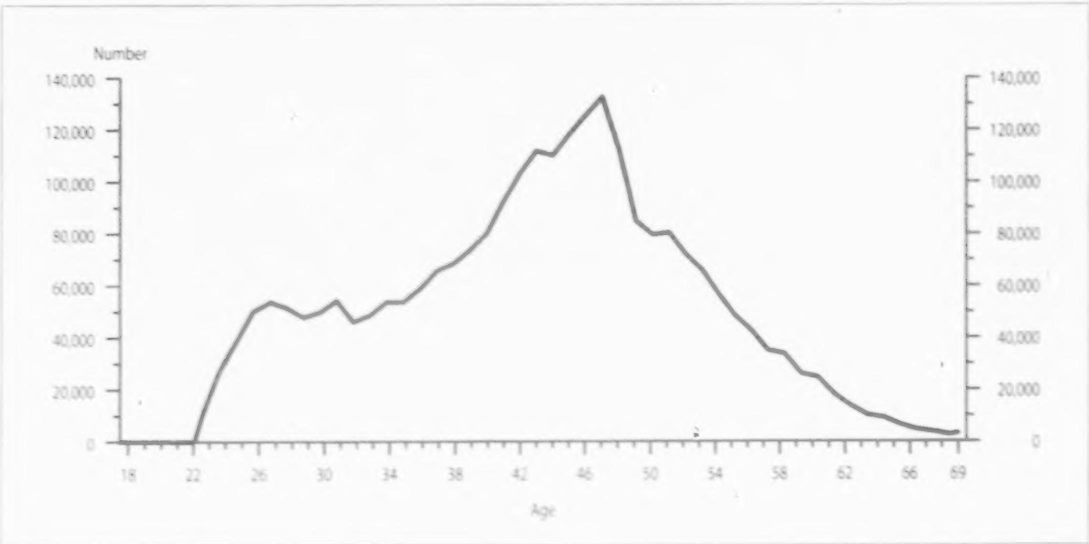
The analysis was conducted at the national level only, as the TFS was not designed for state-level analysis. Thus, continuation rates for each state could not be calculated due to sample size.

Teacher age distribution for a recent year

The model requires an age distribution to use as a starting point for the aging of the teacher force over the forecast period. The total number of public and private school teachers, by age, was obtained from the 1993–94 SASS. The median age was 44 for all public school teachers and 42 for private school teachers. For the nation as a whole, there were more public school teachers age 47 than any other age (figure A).

The SASS age distribution is for a headcount of full- and part-time teachers. Because the number of teachers forecast for each of the later years is for full-time-equivalent (FTE) teachers, however, the number of FTE teachers by age for 1993–94 is required. For modeling purposes, the age distribution of FTE teachers was assumed to be the same as the age distribution of teachers using the headcount

Figure A.—Age distribution of full-time and part-time public school teachers: 1993–94



SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), 1993–94. (Originally published as figure 3 on p. 19 of the complete report from which this article is excerpted.)

number. This assumption seems reasonable both because the age distributions of full-time teachers and part-time teachers were found to be similar in 1993–94 and because the relatively small number of part-time teachers would result in minimal impact on the model in any case.

Total number of teachers for each year under study

Three different assumptions were used to produce alternative scenarios for the numbers of public and private school teachers that will be needed for each year under study:

Scenario 1. For the first scenario, the pupil/teacher ratio was assumed to remain constant at 1995–96 values. The total number of teachers needed each year was estimated by dividing the appropriate enrollment projections by the pupil/teacher ratio. Greatest emphasis was given to the results from scenario 1, although results from the other scenarios were analyzed.

Scenario 2. For the second scenario, it was assumed that for each year from 1996–97 to 2008–09, the number of teachers would remain at 1995–96 levels despite increasing enrollments.

Scenario 3. For the third scenario, the national teacher projections from *Projections of Education Statistics to 2008* (Gerald and Hussar 1998) were used. This method gave the highest figures for newly hired teachers needed because it included an assumption of some decline in the pupil/teacher ratio.

Teacher continuation rates by age

The model calls for a constant set of age-specific continuation rates to be applied to each year of the forecast period. The TFS provides three sets of continuation rates for recent years: from 1993–94 to 1994–95, from 1990–91 to 1991–92, and from 1987–88 to 1988–89. Each set includes separate continuation rates for teachers who continued teaching in public schools and for those who continued teaching in private schools.

The 1993–94 to 1994–95 continuation rates, obtained from the 1994–95 TFS, are the most recent available. Most of the results presented in this report were produced using the 1993–94 to 1994–95 rates, but the sensitivity of the model was examined by using the other sets of rates to produce alternative projections.

Comparisons of forecasts made using all three sets of continuation rates suggest that the model is sensitive to changing continuation rates. While there are few statistically significant differences in continuation rates over time, these rates apply to the entire count of teachers each year. It is not surprising, therefore, that continuation rates are by far the most sensitive facet of the model.

First-time teachers and returning teachers have lower continuation rates than those of the same age who had been teaching the previous year. If the proportion of new teachers in the teaching force grows over time, it will tend to push continuation rates downward.

Age distribution of newly hired teachers

The fourth type of data needed for the model is the age distribution of the newly hired teachers during each year under study. As with the continuation rates, usable data are available for both public school teachers and private school teachers. The most recent actual age distribution of newly hired teachers, obtained from the 1993–94 SASS, was used as the estimated distribution for each year.

An important assumption is that in the forecast period the age distribution of newly hired teachers remains similar to that in the 1993–94 SASS. Comparison of the 1993–94 SASS with the 1987–88 SASS and the 1990–91 SASS showed that the age distributions for these years were similar, though not identical. One factor that may change the age distribution over time is the aging of the baby boom generation. As this generation retires, there may be relatively fewer people in their forties and fifties who become newly hired teachers, thus pushing the average age of newly hired teachers lower. However, programs to encourage the rehiring of retirees may partially diminish this effect.

Results for Public Schools

Using scenario 1 and teacher continuation rates from 1993–94 to 1994–95, the model projects that approximately 2.4 million newly hired public school teachers* will be needed from 1998–99 to 2008–09. These newly hired teachers will be needed to replace teachers who retire or leave the profession for other reasons and to keep the pupil/teacher ratio constant as total enrollment increases.

Effect of alternative continuation rates and scenarios on number of newly hired public school teachers

The combination of three scenarios for total number of teachers and three teacher continuation rates produces a relatively wide range of estimates, from about 1.7 to 2.7 million newly hired teachers (table B).

Under scenario 1, using the most recent continuation rates (from 1993–94 to 1994–95), the model projects that 2.4 million newly hired teachers will be needed. Under the same scenario, but using continuation rates from 1990–91 to 1991–92, approximately 450,000 fewer newly hired teachers are predicted to be needed (19 percent lower than with the most recent continuation rates). If the 1987–88 to 1988–89 rates are used, approximately 350,000 fewer teachers will be needed (14 percent lower than with the most recent rates). These relatively large differences in the forecasts occur because of the cumulative impact of the differences in continuation rates when they are applied to the entire population of teachers over each year of the forecast period. The numbers of newly hired teachers needed are lower using the older sets of continuation rates because the older sets of continuation rates are generally higher.

Even for the same set of continuation rates, there is a considerable range in the estimates. Using the most recent set of continuation rates, for example, the forecast of 2.4 million newly hired teachers needed by 2008–09 under scenario 1 is 10 percent greater than the 2.2 million newly hired teachers projected under scenario 2, but 12 percent less than the 2.7 million teachers projected under scenario 3.

Table B.—Number of newly hired public school teachers needed for the 11 years from 1998–99 to 2008–09, by continuation rate used and teacher total assumption

Scenario number	Continuation rate from 1987–88 to 1988–89	Continuation rate from 1990–91 to 1991–92	Continuation rate from 1993–94 to 1994–95
Scenario 1 (constant pupil/teacher ratio)	2.1 million	1.9 million	2.4 million
Scenario 2 (constant number of teachers)	1.8 million	1.7 million	2.2 million
Scenario 3 (*Projections of Education Statistics to 2008*—declining pupil/teacher ratio)	2.3 million	2.2 million	2.7 million

SOURCE: U.S. Department of Education, National Center for Education Statistics: Schools and Staffing Survey (SASS), 1993–94; Teacher Follow-up Survey (TFS), 1988–89, 1991–92, and 1994–95; and unpublished data tabulations. (Originally published as a text table on p. 9 of the complete report from which this article is excerpted.)

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*In addition to first-time teachers, newly hired public school teachers include those returning to teaching after time away from the profession and those moving from private to public schools.

Changing age distribution of public school teachers

Another way to compare results for the alternative scenarios is to look at projected age distributions. Since the estimated numbers of public school teachers at each age in 2008–09 look very much alike for each of the three scenarios and each of the three sets of continuation rates, this discussion concentrates on the results for scenario 1 and the most recent set of continuation rates.

The age distribution of FTE teachers is predicted to flatten over time, with a more equal distribution of teachers in each age group. Specifically, the proportion of teachers who are in their forties is expected to decrease over time, while other age groups, which had been underrepresented, are expected to increase. Yet, even in 2008–09, the model projects that a sizable number of the teachers who had been in their forties in 1993–94 will still be teaching. The model forecasts that there will be more public school teachers in their late fifties in 2008–09 than there were in 1993–94.

Retirement of public school teachers

Under scenario 1, approximately 759,000 teachers will retire from 1998–99 to 2008–09. As there are fewer teachers each year in scenario 2 compared with scenario 1, there will be fewer teachers who will be retiring (745,000). Conversely, as there are more teachers in scenario 3, there will be more teachers who will be retiring (765,000). These numbers of retiring teachers are based on the most recent continuation rates, but the pattern is similar using the alternative rates.

Results for Private Schools

Using the most recent set of continuation rates, scenario 1 projects that some 568,000 newly hired private school teachers will be needed from 1998–99 to 2008–09. The comparable number is somewhat lower under scenario 2 (524,000) and somewhat higher under scenario 3 (620,000). The range of projections using alternative continuation rates was small compared with the range for newly hired public school teachers: Under scenario 1, the projected numbers of newly hired private school teachers ranged from 2 percent lower (using the 1990–91 to 1991–92 rates) to 5 percent higher (using the 1987–88 to 1988–89 rates) than the number calculated using the most recent rates. A forecast of age distribution predicts that the numbers of both older and younger private school teachers will increase, while the number of teachers in their forties will fall.

Comparison of Results With Bureau of Labor Statistics Projections

Another source of national-level estimates of newly hired elementary and secondary school teachers is the U.S. Department of Labor's Bureau of Labor Statistics (BLS). BLS forecasts annual average job openings for elementary and secondary school teachers at approximately 400,000 per year from 1996 to 2006 (BLS 1998, table 1), for a total of approximately 4.5 million newly hired teachers over this 11-year period. The BLS total is significantly greater than the total of 3.3 million newly hired teachers projected for the same period under scenario 3, which yields this study's highest projections.

One reason for the larger BLS projections is that the BLS definition of teacher includes those working at all preprimary institutions and training centers in addition to those working at traditional elementary and secondary schools. The broader BLS definition results in a greater overall number of teachers than the definition used in this study (3.8 million versus 3.0 million in 1996), and BLS inclusion of daycare staff may also contribute to lower continuation rates. A second reason for the larger BLS projections is that BLS forecasts greater growth in the number of teachers from 1996 to 2006 (21.1 percent from BLS versus 12.7 percent from scenario 3). Again, some of the growth projected by BLS would occur outside traditional elementary and secondary schools.

Despite differences in definitions and results, the projections in this report and the BLS projections both suggest a need for large numbers of newly hired teachers over the next decade.

Conclusions

If the pupil/teacher ratio remains constant, about 2 million newly hired public school teachers and about 500,000 newly hired private school teachers will be needed during the 11-year period from 1998–99 to 2008–09. Some of the alternative assumptions and scenarios result in higher forecasts, particularly scenario 3, which assumes some decline in the pupil/teacher ratio. Data from BLS also indicate a need for large numbers of newly hired teachers.

In the model used for this report's projections, the teacher continuation rate is a critical factor that can be influenced by supply and demand forces. These forces, in turn, are affected by both economic conditions and education policies. For example, a good economy tends to decrease continuation rates by creating greater opportunities for alternative employment. If faced with an aging teacher force and an inadequate supply, however, school districts or state education agencies could enact incentives to delay retirements, thus increasing continuation rates and reducing the demand for new hires, at least temporarily. Increases in salaries or other benefits could be used to help retain teachers who might otherwise leave the profession. Such policies could have a sizable impact on the number of newly hired teachers needed. Also, an economic downturn might make teaching positions more attractive because of their perceived stability.

Supply and demand forces also can influence the model's important, but less critical, assumption regarding the stable age distribution of the new teachers. Districts could enact policies to recruit older people into the teaching profession. The supply of qualified teachers available could be adjusted by changing teacher certification requirements to favor either new or less recent college graduates. These efforts would have an impact on the age distribution of newly hired teachers, which would later affect the teacher demand.

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Data sources: The Schools and Staffing Survey (SASS), 1993–94; Teacher Follow-up Survey (TFS), 1988–89, 1991–92, and 1994–95; Common Core of Data (CCD), selected years; and *Projections of Education Statistics to 2008* (NCES 98–016).

For technical information, see the complete report:

Hussar, W.J. (1999). *Predicting the Need for Newly Hired Teachers in the United States to 2008–09* (NCES 1999–026).

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To obtain the complete report (NCES 1999–026), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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Service-Learning and Community Service in K–12 Public Schools

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This article was originally published as a Statistics in Brief report. The sample survey data are from the "National Student Service-Learning and Community Service Survey," conducted through the NCES Fast Response Survey System (FRSS). Technical notes and standard error tables from the original report have been omitted.

Summary of Key Findings

The National Center for Education Statistics (NCES) of the U.S. Department of Education used the Fast Response Survey System (FRSS) to conduct the "National Student Service-Learning and Community Service Survey" in spring 1999. This is the first survey to provide reliable national estimates of the percentage of public elementary, middle, and high[1] schools incorporating service-learning into their course curriculum; it also provides the most recent data on school engagement in community service. The survey findings include the following:

- Sixty-four percent of all public schools, including 83 percent of public high schools, had students participating in community service activities recognized by and/or arranged through the school.
- Fifty-seven percent of all public schools organized community service activities for their students.
- Thirty-two percent of all public schools, including nearly half of all high schools, organized service-learning as part of their curriculum.
- Schools with service-learning tended to have gradewide service-learning, service-learning in individual courses that were not part of a broader grade- or schoolwide initiative, or disciplinewide service-learning programs.
- Eighty-three percent of schools with service-learning offered some type of support to teachers interested in integrating service-learning into the curriculum, with most providing support for service-learning training or conferences outside of school.
- Most schools with service-learning cited strengthening relationships among students, the school, and the community as key reasons for practicing service-learning.

Background

Incorporating service-learning into K–12 schools is a growing area of interest to educators. Like community service, service-learning requires students to serve their communities. However, service-learning takes community service one step further by incorporating the service experiences of students directly into their school work. Service-learning has long been viewed as a possible means of improving education, with roots stretching back to the late 19th and early 20th centuries. For example, John Dewey, an advocate of service-learning, believed that students would learn more effectively and become better citizens if they engaged in service to the community and had this service incorporated into their academic curriculum (Dewey 1916). Though first suggested over a century ago, the incorporation of service-learning into the curriculum did not begin in earnest until the early 1970s, and it has only been in the last decade that extensive reform efforts have emerged.

Legislative reform over the past 10 years has set in motion a growing national emphasis on increasing students' involvement with their local communities and linking this service to academic study through service-learning. The National and Community Service Act of 1990, through the Serve America program, and the National and Community Service Trust Act of 1993, through the Learn and Serve America program, provided support for service-learning activities in elementary and secondary schools (Corporation for National Service 1999). In addition, through programs such as AmeriCorps, the federal government has offered opportunities to high school graduates, college students, and recent college graduates to serve local communities in exchange for stipends and payment of education loans or money toward future postsecondary education. Both Learn and Serve America and AmeriCorps are administered by the Corporation for National Service, a federal organization also created by the National and Community Service Trust Act of 1993.

Two previous studies, one looking at high schools in 1984 and the other looking at 6th- through 12th-grade students in 1996, provide tentative evidence that service-learning has become more pervasive since the early 1980s. Based on a study conducted in 1984, researchers reported that 27 percent of all high schools (public and private) in the United States offered some type of community service and 9 percent of all high schools offered service-learning, defined as curriculum-related service programs (Newmann and Rutter 1985). The 1996 National Household Education

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[1] High schools include high schools and combined schools. Combined schools are schools that contain both elementary and secondary grades. The highest grade in these schools must be at least 9th grade.

Survey (NHES), conducted by NCES, found that 49 percent of all students in grades 6–12 participated in community service (Nolin, Chaney, and Chapman 1997). Of the students participating in community service, 56 percent reported that their community service was incorporated into the curriculum in some way.

Definitions

The definition of service-learning employed for this study differs from definitions of service-learning used on past surveys. This is not unusual, as noted by the University of Colorado, a leader in the collection and promotion of information about service-learning: "Definitions of service-learning vary considerably among those who embrace it" (University of Colorado 1998). Kraft (1996) presents a similar argument in his discussion of the practice of service-learning. He states that some agreement has been achieved on the definition of service-learning in recent years, but that practices do not always match the definition. For these reasons, specific definitions of community service and service-learning were developed in cooperation with the Corporation for National Service for use on the "National Student Service-Learning and Community Service Survey." The following definitions were provided to respondents to help clarify the definitions of both terms:

Community service. For the purposes of this survey, student community service is defined as community service activities that are non-curriculum-based and are recognized by and/or arranged through the school. The community service:

- May be mandatory or voluntary;
- Generally does not include explicit learning objectives or organized reflection or critical analysis activities; and
- May include activities that take place off of school grounds or may happen primarily within the school.

Community service activities may be carried out as schoolwide events, separately organized school programs, or projects conducted by school-sponsored clubs (e.g., Girls/Boys Clubs, National Honor Society). Examples of service activities could include cleaning up a local park, visiting the elderly, or collecting and distributing food to those in need.

Service-learning. For the purposes of this survey, service-learning is defined as curriculum-based community service that integrates classroom instruction with community service activities. The service must:

- Be organized in relation to an academic course or curriculum;
- Have clearly stated learning objectives;
- Address real community needs in a sustained manner over a period of time; and
- Assist students in drawing lessons from the service through regularly scheduled, organized reflection or critical analysis activities, such as classroom discussions, presentations, or directed writing.

Example of service-learning: Students in a middle school science class studying the environment help preserve the natural habitat of animals living at a local lake. Through classroom studies, the students learn about the environment. The students keep the area around the lake clean, post signs providing information to the public, and study soil and water composition as well as the impact of industrial development on wildlife. Throughout the project, students write about their experiences in journals and participate in class discussions about the project and its effect on their lives and the local community.

These definitions appeared on the cover page of the survey and were incorporated into questions that asked if the school had students participating in community service (question 1) and/or had students participating in service-learning (question 6). Some schools may have interpreted the definition of service-learning more loosely than as stated. In addition, some states, school districts, and schools supporting community service and/or service-learning have established definitions different from the ones used for the survey. This may have created confusion for respondents who have become accustomed to labeling the service activities in their school as either community service or service-learning. They may have inadvertently disregarded the definitions established for this survey in favor of the definitions they have been using. In cases where response inconsistencies were noted, follow-up calls were made to the schools to resolve those issues. On the basis of their responses, it was determined that the majority of schools that reported having students participating in some form of service-learning did have students participating in curriculum-related service activities distinct from community service.

About the Survey

After nearly a decade of emphasis on increasing student involvement in service activities, measuring the extent to which service-learning and community service occur in K–12 public schools is an important step in assessing their overall effect. The "National Student Service-Learning and Community Service Survey" was designed to meet this need for data, focusing particularly on service-learning. This report seeks to answer several important questions:

- What percentage of schools have students participating in community service?
- What percentage of schools organize community service activities for students?
- What percentage of schools have students participating in service-learning?
- In what ways are schools implementing service-learning?
- What types of support are available for teachers interested in integrating service-learning into their course curriculum?
- What are schools' main reasons for encouraging student participation in service-learning?
- What special grants or special funding are available to support service-learning or community service?

Prior to this survey, there were no reliable national data available to indicate the prevalence of service-learning in elementary or middle schools. It was assumed, based on very limited information, that the percentage of elementary schools with service-learning was negligible and that the percentage of middle schools with service-learning was low. Consequently, a sample was drawn that included disproportionately more high schools than elementary or middle schools. It turns out, however, that significant numbers of elementary and middle schools are engaged in service-learning. Thus, while the sample is nationally representative and unbiased, the design is statistically inefficient for some overall estimates that include all three instructional levels (elementary, middle, and high). Therefore, while reported differences between subgroups may appear to be large, the large standard errors render the apparent differences not statistically significant. For example, while differences between schools with students participating in community service activities based on the percentage of minority enrollment may appear to be large, none of the comparisons are statistically significant.

Data have been weighted to national estimates of regular public schools. All comparative statements made in this report have been tested for statistical significance through chi-squared tests or *t*-tests adjusted for multiple comparisons using the Bonferroni adjustment and are significant at the .05 level or better.

Community Service

Overall, 64 percent of all public schools in the United States had students participating in community service activities recognized by and/or arranged through the school. A higher percentage of high schools (83 percent) than elementary schools (55 percent) or middle schools (77 percent) had students engaged in community service activities (table 1). Middle schools were also more likely to have students participating in community service activities than were elementary schools. There were also differences in community service participation by school size, with larger schools (i.e., those enrolling 1,000 or more students) more likely to have students participating in community service activities than schools with lower enrollments.

Schools' use of community service also varied by the economic background of students. Using the Title I threshold for schools that qualify as schoolwide Title I programs (U.S. Department of Education 1999), schools where 50 percent or more of the student body were eligible for free or reduced-price lunch were compared to those where fewer students qualified. Schools with less than 50 percent of their students eligible for free or reduced-price lunch were more likely to have students participating in community service activities than those that had higher percentages of students eligible for free or reduced-price lunch.

One measure of school commitment to community service activities is whether the school organizes community service activities in which students can participate. Fifty-seven percent of all public schools organized community service activities for their students (table 1). This represented 89 percent of schools whose students were participating in community service activities (not shown in table). Middle schools (71 percent) and high schools (71 percent) were more likely to organize community service activities than were elementary schools (49 percent) (table 1). In addition, schools with less than 50 percent of their students eligible for free or reduced-price lunch were also more likely to organize community service activities than schools with 50 percent or more of their students eligible for free or reduced-price lunch.

Service-Learning

Service-learning in K–12 schools combines elements of community service with classroom instruction. The service performed by students must be organized in relation to the curriculum, have clearly stated learning objectives, meet real community needs, and include participant reflection or critical analysis of the service activities. The percentage of public schools nationwide with service-learning was 32 percent (table 1), which means that about half as many schools had service-learning as had community service. By

Table 1.—Percent of public schools that have students participating in community service, arrange community service opportunities for students, and have students participating in service-learning, by school characteristics: Academic year 1998–99

School characteristic	Total	Percent with community service	Percent organizing community service activities	Percent with service-learning
All public schools	79,750	64	57	32
Instructional level				
Elementary	49,350	55	49	25
Middle	14,398	77	71	38
High*	16,002	83	71	46
Size of enrollment				
Less than 300	19,842	59	53	27
300 to 999	51,876	65	57	31
1,000 or more	8,022	77	69	48
Type of locale				
City	20,742	66	61	36
Urban fringe	26,579	63	57	27
Town	11,614	65	59	43
Rural	20,814	64	53	27
Geographic region				
Northeast	16,121	67	64	30
Southeast	15,927	63	56	35
Central	22,442	67	58	32
West	25,259	61	53	30
Percent minority enrollment				
Less than 6 percent	25,925	67	58	31
6 to 20 percent	16,965	65	56	31
21 to 49 percent	18,208	72	67	36
50 percent or more	17,798	54	50	29
Percent of students eligible for free or reduced-price lunch				
Less than 50 percent	50,975	69	63	36
50 percent or more	15,409	50	43	23

*High schools include high schools and combined schools. Combined schools are schools that contain both elementary and secondary grades. The highest grade in these schools must be at least 9th grade.

NOTE: Because of rounding or missing data, detail may not sum to total.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "National Student Service-Learning and Community Service Survey," FRSS 71, 1999.

instructional level, 25 percent of elementary schools, 38 percent of middle schools, and 46 percent of all high schools had students participating in service-learning.

There were also differences in the percentage of schools with service-learning based on the percentage of students eligible for free or reduced-price lunch. Schools with less than 50 percent of their students eligible for free or reduced-price lunch were more likely to have service-learning than were schools with 50 percent or more of their students eligible for free or reduced-price lunch.

Implementation of service-learning

Schools can implement service-learning programs in a number of different ways. They range from schoolwide service-learning, which involves every student in the school, to gradewide service-learning, which involves all students in one or more grades, to service-learning as part of an individual course. Of schools with service-learning, 79 percent reported implementing service-learning in two or more ways (not shown in table). Irrespective of how service-learning is implemented, a program may be mandatory and/or voluntary in the same school. For example, a school might require that all 10th-graders participate in service-learning, while allowing students in other grades the option of participating.

Overall, 70 percent of schools with service-learning had students participating in gradewide service-learning, where all students in one or more grades participated in a service project or program through academic coursework (table 2). Sixty-two percent of schools reported that service-learning was offered in individual academic classes that were not part of a broader grade- or schoolwide initiative. Disciplinewide service-learning, that is, service-learning integrated into an entire subject area through academic coursework, was utilized in 53 percent of schools. One-third of the schools with service-learning reported having schoolwide service-learning during the 1998–99 academic year.

Examining the data by instructional level reveals significant differences in the ways elementary schools and middle/high schools implemented service-learning. Elementary schools were more likely to have gradewide or disciplinewide service-learning than were middle/high schools. At the same time, middle/high schools were more likely than elementary schools to have service-learning in individual academic classes that were not part of a broader grade- or schoolwide initiative or in separate electives or advisory periods.

The ways schools implemented service-learning varied, to some extent, by whether the service-learning was voluntary or mandatory. In general, schools were more likely to make service-learning a voluntary choice for students than to mandate it (figure 1). When looking at mandatory participation and voluntary participation practices by instructional level, middle/high schools were more likely to make participation in service-learning voluntary. However, any difference that might exist at the elementary school level between mandatory and voluntary participation was not statistically significant.

Types of support for teachers

Interest in involving students in service-learning has been accompanied by support being provided to teachers interested in integrating service-learning into their course curriculum. Nationwide, 83 percent of public schools with service-learning offered some type of support to teachers interested in integrating service-learning into the curriculum (table 3). The most common types of support provided to teachers included support for attending service-learning training or conferences outside of the school (66 percent), financial support for costs associated with service-learning projects or programs (58 percent), and minigrants for service-learning programs or curriculum development (45 percent). However, smaller percentages of schools provided staff support in the form of part-time service-

Table 2.—Of public schools with service-learning, percent implementing service-learning in various ways, by instructional level: Academic year 1998–99

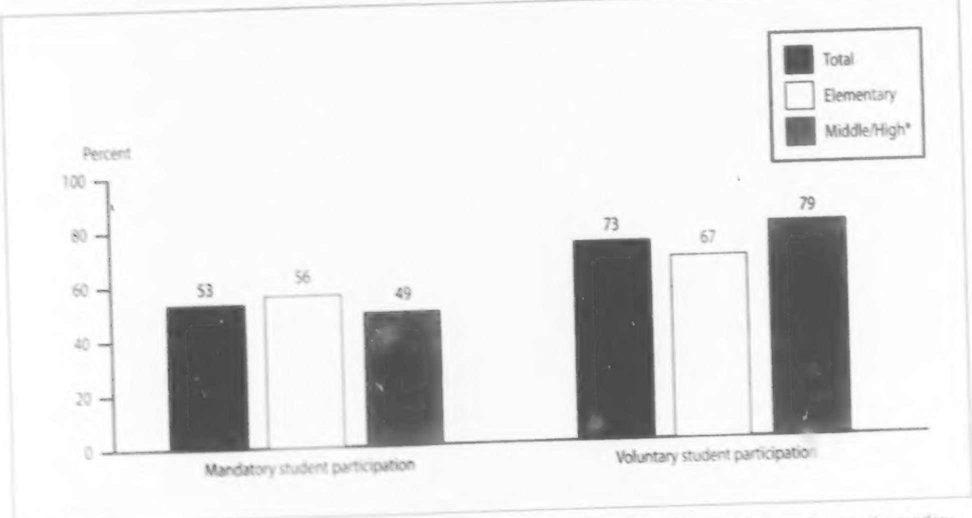
Instructional level and implementation of service-learning	Percent with any participation
All schools	
Gradewide service-learning	70
Service-learning in individual academic courses that are not part of a broader grade- or schoolwide initiative	62
Disciplinewide service-learning	53
Service-learning as part of a special education program	34
Schoolwide service-learning	33
Service-learning as a separate elective or advisory period	29
Service-learning as part of a dropout prevention course or program	14
Elementary	
Gradewide service-learning	88
Service-learning in individual academic courses that are not part of a broader grade- or schoolwide initiative	54
Disciplinewide service-learning	62
Service-learning as part of a special education program	35
Schoolwide service-learning	37
Service-learning as a separate elective or advisory period	20
Service-learning as part of a dropout prevention course or program	11
Middle/high*	
Gradewide service-learning	53
Service-learning in individual academic courses that are not part of a broader grade- or schoolwide initiative	70
Disciplinewide service-learning	44
Service-learning as part of a special education program	33
Schoolwide service-learning	28
Service-learning as a separate elective or advisory period	38
Service-learning as part of a dropout prevention course or program	16

*High schools include high schools and combined schools. Combined schools are schools that contain both elementary and secondary grades. The highest grade in these schools must be at least 9th grade.

NOTE: Data presented in this table are based upon the number of schools having service-learning—32 percent of public schools. Percentages of schools implementing service-learning in various ways do not sum to 100 because many schools implemented service-learning in more than one way.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "National Student Service-Learning and Community Service Survey," FRSS 71, 1999.

Figure 1.—Percent of public schools with service-learning, by instructional level and mandatory or voluntary student participation: Academic year 1998–99



*High schools include high schools and combined schools. Combined schools are schools that contain both elementary and secondary grades. The highest grade in these schools must be at least 9th grade.

NOTE: Data presented in the figure are based upon the number of schools having service-learning—32 percent of public schools. Percentages of schools reporting mandatory and voluntary student participation in service-learning do not sum to 100 because many schools had both mandatory and voluntary student participation in service-learning.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "National Student Service-Learning and Community Service Survey," FRSS 71, 1999.

Table 3.—Percent of public schools with service-learning that provide support to teachers interested in integrating service-learning into their course curriculum, by type of support provided: Academic year 1998–99

Type of support provided	Percent providing support
Any support	83
Support for attending service-learning training or conferences outside of the school	66
Financial support for costs associated with service-learning projects or programs	58
Minigrants for service-learning program or curriculum development	45
Special recognition or awards for teachers using service-learning in their courses	29
Part-time service-learning coordinator	18
Extra planning time for service-learning activities	15
Reduction in course load to allow time for service-learning program development or supervision	11
Full-time service-learning coordinator	3
Other	3

NOTE: Data presented in this table are based upon the number of schools having service-learning—32 percent of public schools. Percentages of schools reporting that they provided support to teachers interested in integrating service-learning into their course curriculum do not sum to 100 because many schools reported providing more than one type of support.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "National Student Service-Learning and Community Service Survey," FRSS 71, 1999.

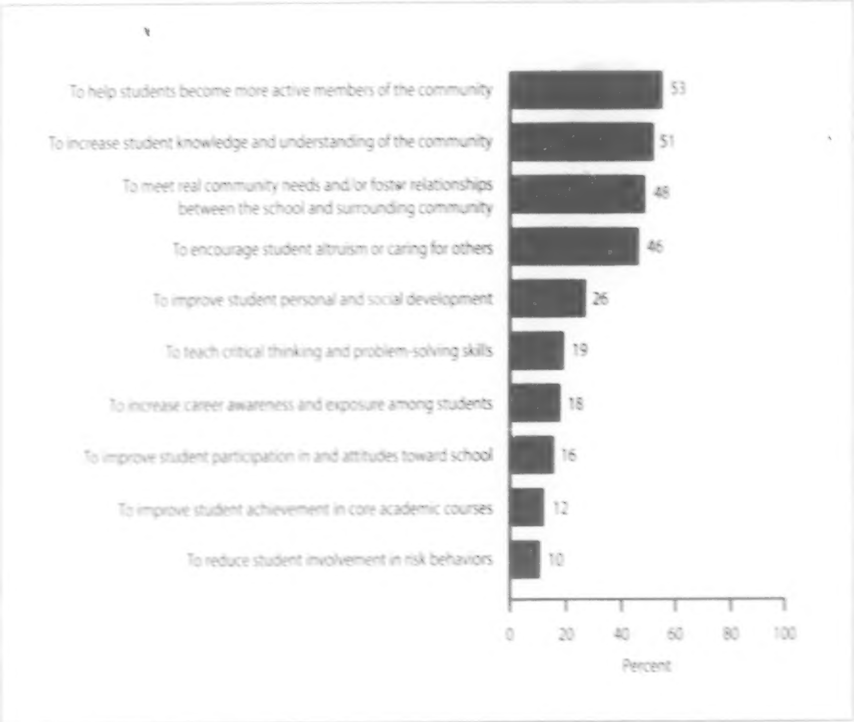
learning coordinators (18 percent) or full-time service-learning coordinators (3 percent).

Why service-learning?

Public schools with service-learning were asked to select their three most important reasons for encouraging student involvement in service-learning from a list of ten potential reasons. These reasons ranged from increasing student knowledge and understanding of the community to improving student participation in school. The most frequently cited reasons for encouraging student involvement in service-learning focused on the relationships among students, the school, and the community. For example, 53 percent of schools said that they encouraged student involvement in service-learning to help students become more active members of the community (figure 2). The other most frequently cited reasons were increasing student knowledge and understanding of the community (51 percent), meeting real community needs and/or fostering relationships between the school and surrounding community (48 percent), and encouraging student altruism or caring for others (46 percent).

While involvement with the community is a key component of service-learning, it is only a part of the service-learning experience. The other side of service-learning emphasizes the connection between service and academics (figure 2). About one-fifth (19 percent) of schools with service-learning said that one of their top three reasons for encouraging student involvement in service-learning was to teach critical thinking and problem-solving skills. In addition, 12 percent of schools with service-learning said

Figure 2.—Of public schools with service-learning, percent indicating that various reasons for encouraging student involvement in service-learning were among the most important: Academic year 1998–99



NOTE: Data presented in this figure are based upon the number of schools having service-learning—32 percent of public schools. Percentages of schools citing reasons for encouraging student involvement in service-learning do not sum to 100 percent because schools selected their three most important reasons.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "National Student Service-Learning and Community Service Survey," FRSS 71, 1999.

that improving student achievement in core academic courses was one of their most important reasons for encouraging student involvement in service-learning.

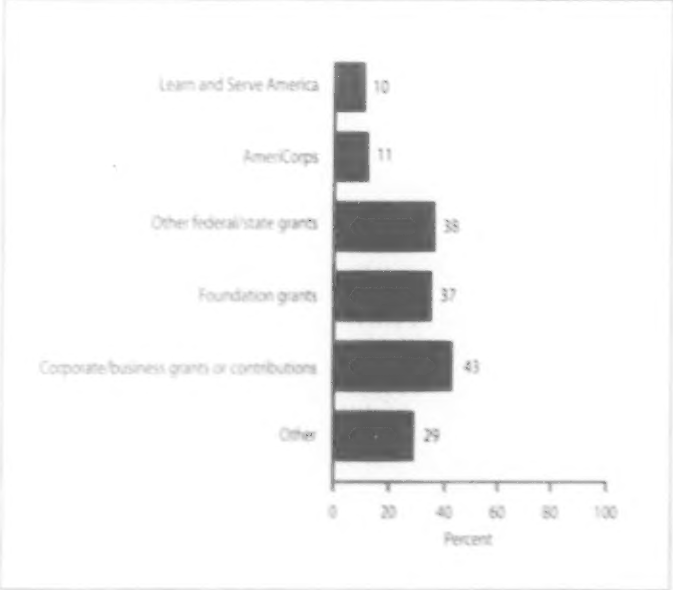
Special funding for service activities

All public schools were asked whether they received any special grants or other special funding to support community service and/or service-learning. Four-fifths of all schools (84 percent) that reported they had some level of service-learning and/or community service also reported they did not receive outside financial help to fund the program(s). Of the 16 percent of schools that did report receiving special funding, 43 percent reported receiving support from corporations or businesses, and 37 percent reported receiving support from foundation grants (figure 3). Ten percent of schools receiving special support indicated that they received support through the Learn and Serve America program, a federal program designed to provide grants to schools interested in integrating service-learning into their curriculum.

Conclusion

The findings from the "National Student Service-Learning and Community Service Survey" indicate that community service and service-learning are rooted in the U.S. public elementary and secondary education system. The data suggest that there has been an increase in the percentage of public schools involving their students in community service activities, and much of this service is being integrated into the curriculum. For example, in 1984, 27 percent of all high schools were reported to have community service and 9 percent were reported to have service-learning (Newmann and Rutter 1985). During the 1998–99 academic year, these percentages were 83 percent and 46 percent, respectively (table 1). At the same time, the majority of schools with service-learning provided some support to teachers interested in integrating service-learning into their curriculum. Among schools with service-learning, the most frequently cited reasons for involving students in service-learning revolved around strengthening relationships among students, the school, and the community.

Figure 3.—Of public schools receiving any special grants or other special funding to support service-learning and/or community service activities, percent receiving various sources of funding: Academic year 1998–99



NOTE: Data presented in this figure are based upon the number of schools that reported receiving any special grants or other special funding to support service-learning or community service activities—16 percent of public schools. Percentages of schools reporting that they received special grants or special funding do not sum to 100 because many schools reported receiving special grants or special funding from more than one source.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "National Student Service-Learning and Community Service Survey," FRSS 71, 1999.

While this report uses some of the data from the FRSS study on school-level service-learning to provide much-needed basic information about the state of service-learning in our public schools, more analyses can and should come out of these data. For instance, while it is clear that many schools support service-learning to some degree, it is not clear how deep such support is. Detailed items from the study about the level of support for teacher service-learning training could help answer this question. Another issue that could be explored using these data deals with the subject areas in which service-learning is integrated. A third question that could be addressed is to what extent and in what capacity students are involved in selecting the service activities they will perform. Of course, this study cannot answer every important question about schools' and students' experiences with service-learning, suggesting the need for further studies. For example, it would be interesting to learn if schools that have initiated service-learning activities build on their early experiences by institutionalizing service-learning over time. Such a question and others examining changes in schools' use of service-learning, student participation, support for teachers, and funding require research allowing analysis of changes across time.

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Data source: The NCES Fast Response Survey System (FRSS), "National Student Service-Learning and Community Service Survey," FRSS 71, 1999.

For technical information, see the complete report:

Skinner, R., and Chapman, C. (1999). *Service-Learning and Community Service in K–12 Public Schools* (NCES 1999–043).

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To obtain the complete report (NCES 1999–043), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Internet Access in Public and Private Schools

This article was originally published as an Indicator of the Month, taken from* The Condition of Education: 1999. *The sample survey data are from several surveys—listed at the end of this article—on advanced telecommunications and Internet access in U.S. schools. The surveys were conducted through the NCES Fast Response Survey System (FRSS).

The Internet, with its vast array of information, can broaden the learning resources available in schools by providing teachers and students with connections to libraries, schools, and government agencies. Information found on the Internet can broaden students' knowledge base, and Internet access can prepare students for an increasingly technological workplace. Examining patterns of Internet access in schools can help determine how many students will be prepared to use this technology effectively in the future.

- Between fall 1994 and fall 1998, Internet access in public schools increased from 35 to 89 percent of schools (table 1 and figure 1a). The percentage of public school instructional rooms with Internet access also increased during this time period (from 3 percent in 1994 to 51 percent in 1998).
- Public schools with a high student poverty level (71 percent or more of students eligible for free or reduced-price lunch) were less likely to have Internet access than schools with a low student poverty level (less than 11 percent of students eligible for free or reduced-price lunch) from fall 1994 to 1997 (table 1 and figure 1b). However, in fall 1998, high poverty-level public schools were as likely to have Internet access as low poverty-level schools.
- In fall 1997, public schools with a high minority enrollment (50 percent or more) had both a lower rate of Internet access and a smaller percentage of instructional rooms with Internet access than public schools with a low minority enrollment (less than 6 percent) (table 1). By fall 1998, the gap between high and low minority enrollment schools with Internet access had closed, but high minority enrollment schools were still less likely to have instructional rooms with Internet access.
- In both public and private schools with Internet access, teachers were more likely to have access to e-mail, news groups, resource location services, and the World Wide Web than were students in these schools.

Table 1.—Percentage of public schools and instructional rooms with Internet access, by school characteristics: Fall 1994–98

	Percentage of schools with Internet access					Percentage of instructional rooms with Internet access[1]				
School characteristics	1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
Total	35	50	65	78	89	3	8	14	27	51
Level of school[2]										
Elementary	30	46	61	75	88	3	8	13	24	51
Secondary	49	65	77	89	94	4	8	16	32	52
Percentage of students eligible for free or reduced-price lunch										
Less than 11	40	62	78	88	87	4	9	18	36	62
11–30	39	59	72	83	94	4	10	16	32	53
31–70	33	47	58	78	91	3	7	14	27	52
71 or more	19	31	53	63	80	2	3	7	14	39
Percentage of minority students enrolled										
Less than 6	38	52	65	84	91	6	9	18	37	57
6–20	38	58	72	87	93	4	10	18	35	59
21–49	38	54	65	73	91	4	9	12	22	52
50 or more	27	40	56	63	82	3	3	5	13	37

[1] Based on the total number of instructional rooms in regular public schools.

[2] Data for combined schools are not reported as a separate level of school because there are too few sample observations for a reliable estimate. Included in the totals are data for combined schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: (1998) *Internet Access in Public Schools* (NCES 98-031), table 1, p. 1; (1999) *Internet Access in Public Schools and Classrooms: 1994–98* (NCES 1999-017), table 1, p. 1; and (1997) *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools: Fall 1996* (NCES 97-944), table 1, p. 3.

Figure 1a.—Percentage of public schools and instructional rooms with Internet access: Fall 1994–98

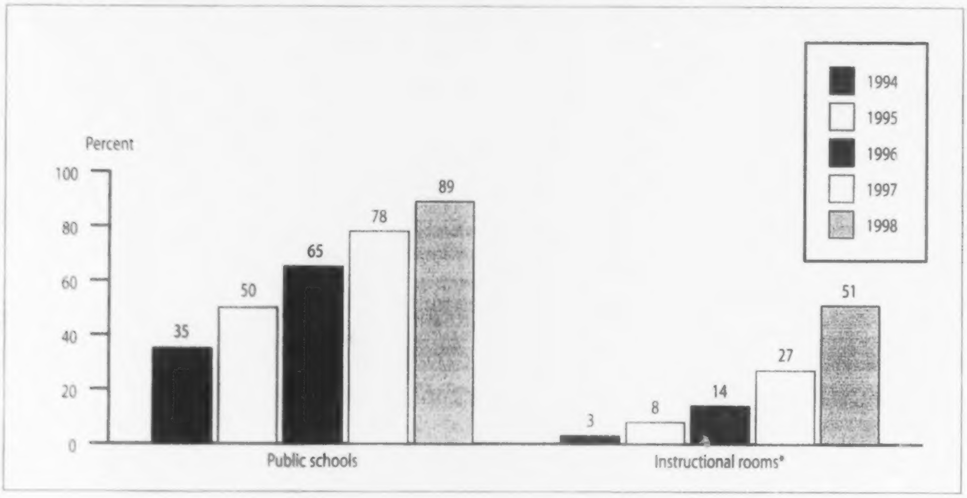
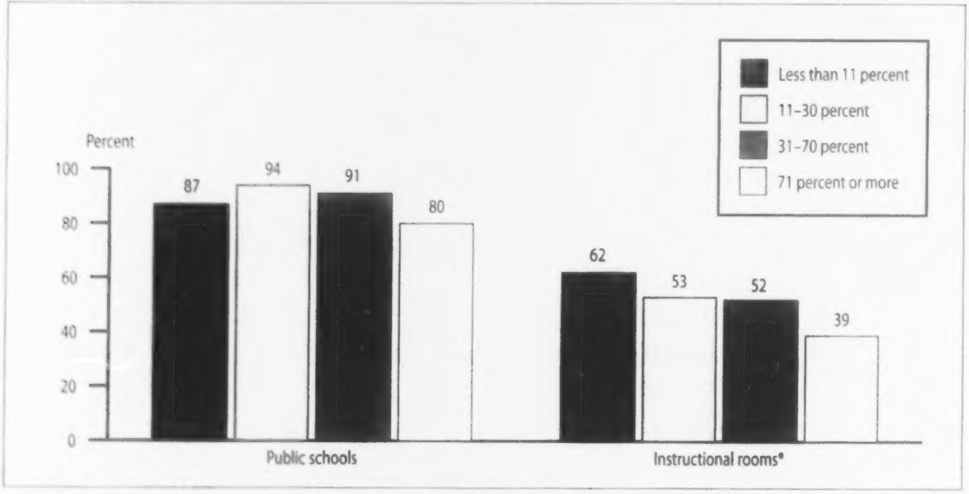


Figure 1b.—**Percentage of public schools and instructional rooms with Internet access, by percentage of students eligible for free or reduced-price lunch: Fall 1998**



*Based on the total number of instructional rooms in regular public schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: (1998) *Internet Access in Public Schools* (NCES 98–031), table 1, p. 1; (1999) *Internet Access in Public Schools and Classrooms: 1994–1998* (NCES 1999–017), table 1, p. 1; and (1997) *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools: Fall 1996* (NCES 97–944), table 1, p. 3.

Data sources: The following surveys, all conducted through the NCES Fast Response Survey System (FRSS): "Survey on Advanced Telecommunications in U.S. Public Schools, K–12" (FRSS 51, 1994); "Survey on Advanced Telecommunications in U.S. Private Schools, K–12" (FRSS 56, 1995); "Survey on Advanced Telecommunications in U.S. Public Schools, K–12" (FRSS 57, 1995); "Survey on Advanced Telecommunications in U.S. Public Schools: Fall 1996" (FRSS 61, 1996); "Survey on Advanced Telecommunications in U.S. Public Schools: Fall 1997" (FRSS 64, 1997); and "Survey on Internet Access in U.S. Public Schools: Fall 1998" (FRSS 69, 1998).

For technical information, see

National Center for Education Statistics. (1999). *The Condition of Education: 1999* (NCES 1999–022).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1999 (http://nces.ed.gov/pubs99/condition99)*, or
- volume 2 of the printed version (forthcoming): *The Condition of Education: 1999 Supplemental and Standard Error Tables* (NCES 2000–016).

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Private School Universe Survey: 1997–98

Stephen P. Broughman and Lenore A. Colaciello

This article was originally published as the Introduction and Selected Results of the Statistical Analysis Report of the same name. The universe data are from the NCES Private School Survey (PSS).

Introduction

This report on the private school universe presents data on schools with grades kindergarten through 12 by school size, school level, religious orientation, geographic region, community type, and program emphasis. The numbers of students and teachers are reported in the same categories. The number of students is also reported by race/ethnicity, gender, and grade level.

Tables in the complete report present data by three classification schemes: private school typology, religious orientation, and association membership. The private school nine-category typology is based on methodological work completed at the National Center for Education Statistics (NCES). Each of the primary divisions (Catholic, other religious, and nonsectarian) is subdivided into three additional categories: Catholic into parochial (parish), diocesan, and private order; other religious into conservative Christian, affiliated with a national denomination or other religious school association, and unaffiliated; and nonsectarian into regular program, special emphasis, and special education.

The Private School Survey (PSS), conducted every 2 years by the U.S. Bureau of the Census for NCES, is designed to collect data from all private schools in the 50 states and the District of Columbia. The PSS conducted in 1997–98 is the data source for this report. The counts presented here are estimates derived from an area frame as well as a census of lists. (An estimate of the total undercount is given in the full report.) Although, beginning in 1995, the PSS definition of a school was expanded to include those schools for which kindergarten was the highest grade, referred to as kindergarten-terminal schools, all estimates presented in this report, unless otherwise stated, will be for traditional schools, i.e., those meeting the more restrictive pre-1995 PSS definition of having at least one of grades 1 through 12.

Selected Results

Schools

In the fall of 1997, there were 27,402 private elementary and secondary schools in the United States, a total not statistically different from the 27,686 schools counted in the fall of 1995 (Broughman and Colaciello 1998). Among these schools, there was considerable diversity as to orientation and affiliation. Of the three primary types of private schools—Catholic, other religious, and nonsectarian—other religious schools were the most numerous, followed by Catholic schools and then nonsectarian schools, representing 48, 30, and 22 percent of all private schools, respectively (table 1 and figure 1). Parochial schools were the most numerous type of Catholic schools, followed by diocesan and then private order schools. Among the three categories of other religious schools—conservative Christian, affiliated, and unaffiliated—there were fewer affiliated schools than conservative Christian schools or unaffiliated schools. Of the nonsectarian schools, regular schools were the most numerous, followed by special emphasis schools and then special education schools.

The regions with the most private schools were the Midwest (27 percent) and South (30 percent); the region with the fewest was the West (20 percent) (table 1). Ninety-one percent of private schools offered at least some elementary grades, with 61 percent offering elementary grades only and 30 percent offering a combination of elementary and secondary grades; the remaining 9 percent offered secondary grades only. Most private schools (82 percent) emphasized a regular elementary/secondary program. The other program emphasis categories—Montessori, special program emphasis, special education, vocational/technical, early childhood, and alternative—each contained fewer than 10 percent of private schools.

Enrollment

Approximately 5 million students were enrolled in the nation's private schools in the fall of 1997, a total not statistically different from that of 1995 (Broughman and Colaciello 1998). Private school students represent approximately 10 percent of the total elementary and secondary students in the United States.[1]

In contrast to the number of schools, more students were enrolled in Catholic schools than in other religious schools, 50 and 35 percent of total private enrollment, respectively (table 1 and figure 2). Like the number of schools, enrollment in nonsectarian schools, representing 16 percent of all private students, was less than that of Catholic or other

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[1] The source for public school enrollment data is the Common Core of Data (CCD) "State Nonfiscal Survey of Public Elementary/Secondary Education: School Year 1997–1998" (Johnson 1999).

Table 1.—Number and percentage distribution of private schools, students, and FTE teachers, by private school typology and selected characteristics: United States, 1997–98

	Schools		Students		FTE teachers	
Selected characteristics	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total	27,402	100.0	5,076,119	100.0	376,544	100.0
Private school type						
Catholic	8,182	29.9	2,514,699	49.5	144,642	38.4
Parochial	4,778	17.4	1,345,956	26.5	72,444	19.2
Diocesan	2,556	9.3	829,250	16.3	47,400	12.6
Private	848	3.1	339,494	6.7	24,799	6.6
Other religious	13,195	48.2	1,764,447	34.8	143,073	38.0
Conservative Christian	4,978	18.2	737,013	14.5	56,834	15.1
Affiliated	3,287	12.0	551,517	10.9	46,362	12.3
Unaffiliated	4,929	18.0	475,917	9.4	39,877	10.6
Nonsectarian	6,025	22.0	796,972	15.7	88,829	23.6
Regular	2,705	9.9	553,371	10.9	57,422	15.3
Special emphasis	2,070	7.6	158,627	3.1	16,950	4.5
Special education	1,250	4.6	84,975	1.7	14,457	3.8
School level						
Elementary	16,623	60.7	2,824,844	55.7	180,452	47.9
Secondary	2,487	9.1	798,339	15.7	60,885	16.2
Combined	8,292	30.3	1,452,937	28.6	135,207	35.9
Program emphasis						
Regular elementary/secondary	22,363	81.6	4,684,016	92.3	330,165	87.7
Montessori	1,144	4.2	69,911	1.4	7,544	2.0
Special program emphasis	589	2.2	100,149	2.0	9,795	2.6
Special education	1,387	5.1	93,498	1.8	15,983	4.3
Vocational/technical	—	—	—	—	—	—
Early childhood	160	0.6	7,898	0.2	582	0.2
Alternative	1,745	6.4	118,790	2.3	12,339	3.3
Size						
Less than 150	15,573	56.8	918,907	18.1	96,241	25.6
150 to 299	6,656	24.3	1,439,334	28.4	99,344	26.4
300 to 499	3,125	11.4	1,197,240	23.6	78,641	20.9
500 to 749	1,339	4.9	800,437	15.8	53,089	14.1
750 or more	711	2.6	720,201	14.2	49,229	13.1
Region						
Northeast	6,325	23.1	1,287,045	25.4	100,306	26.6
Midwest	7,423	27.1	1,345,553	26.5	88,612	23.5
South	8,111	29.6	1,510,340	29.8	121,925	32.4
West	5,542	20.2	933,182	18.4	65,701	17.5
Community type						
Central city	10,902	39.8	2,472,859	48.7	178,074	47.3
Urban fringe/large town	10,263	37.5	2,018,085	39.8	148,850	39.5
Rural/small town	6,236	22.8	585,175	11.5	49,620	13.2

— Too few sample cases for a reliable estimate.

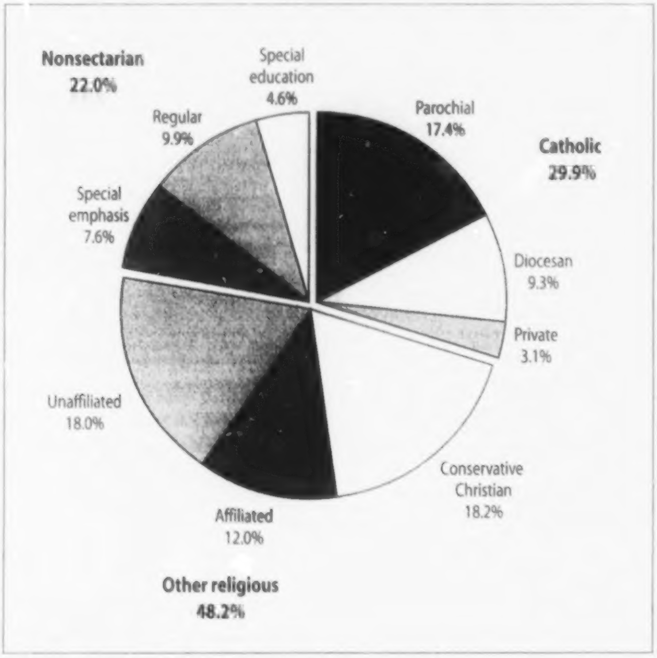
NOTE: Details may not add to totals due to rounding or missing values in cells with too few sample cases.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Private School Survey (PSS), 1997–98.

religious schools. That Catholic schools represent approximately one-third of all private schools while containing half of private school students is an indication that the distribution of schools by size is not the same for the three types of schools. In fact, the percentage of schools that are small (fewer than 150 students) is over three times greater for other religious (72 percent) and nonsectarian (76 percent) schools than for Catholic schools (19 percent). The pattern of enrollment for the three categories of Catholic schools mirrored that of the number of schools; more students were enrolled in parochial schools, followed by diocesan schools and then private order schools. Among the three categories of other religious schools, the enrollment pattern did not mirror the number of schools. Enrollment was greatest in conservative Christian schools, followed by affiliated schools and then unaffiliated schools. Of the nonsectarian schools, regular schools had more students, followed by special emphasis schools and then special education schools.

Approximately 56 percent of private school students were enrolled in elementary schools, 16 percent were enrolled in

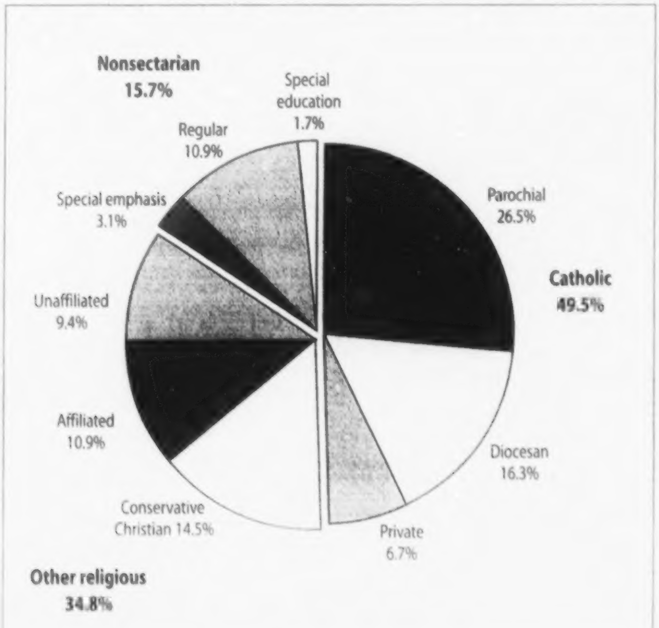
Figure 1.—Percentage distribution of private schools, by typology



NOTE: Details may not sum to 100.0 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Private School Survey (PSS), 1997–98.

Figure 2.—Percentage distribution of private school students, by typology



SOURCE: U.S. Department of Education, National Center for Education Statistics, Private School Survey (PSS), 1997–98.

secondary schools, and 29 percent were enrolled in combined schools (table 1). Ninety-two percent of private school students were enrolled in schools with a regular elementary/secondary program emphasis, while fewer than 5 percent of private school students were enrolled in schools featuring any one of the other categories of program emphasis.

About three-quarters (78 percent) of private school students were white, non-Hispanic; while 9, 8, 0.5, and 5 percent were black, non-Hispanic; Hispanic; American Indian/Alaska Native; or Asian/Pacific Islander, respectively.[2] Almost half of all private school students attended schools that were located in urban areas, and approximately 40 percent attended schools that were located in an urban fringe or a large town, while only 12 percent attended rural schools (table 1).

Teachers

The nation's private school students were taught by approximately 377,000 full-time-equivalent (FTE) teachers (table 1) in 1997, representing an increase over the number of FTE teachers employed in private schools in 1995 (Broughman and Colaciello 1998). In contrast to enrollment, Catholic schools and other religious schools each employed approximately the same number of FTE teachers (38 percent), while both employed more than nonsectarian schools (24 percent) (table 1 and figure 3). The pattern of teacher employment for the three categories of Catholic schools mirrored that of the number of schools and students; more FTE teachers were teaching in parochial schools, followed by diocesan schools and then private order schools. For other religious and nonsectarian schools, the number of FTE teachers followed the same pattern as the number of students enrolled. Among the three categories of other religious schools, conservative Christian schools employed the most teachers, followed by affiliated schools and then unaffiliated schools. Of the nonsectarian schools, more FTE teachers were employed by regular schools, followed by special emphasis schools and then special education schools.

Nearly one-half of FTE teachers (48 percent) were teaching in elementary schools, roughly one-third (36 percent) in combined schools, and about 16 percent in secondary schools. Almost 88 percent of private school FTE teachers

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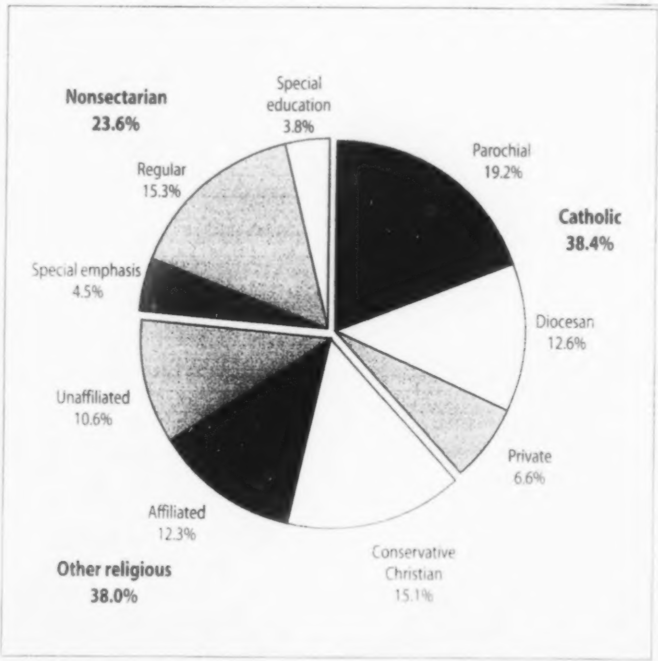
[2] For comparisons of the racial/ethnic composition of private school enrollment with that of public schools based on 1987–88, 1990–91, and 1993–94 data from the Schools and Staffing Survey (SASS), see McLaughlin, O'Donnell, and Ries (1995) and McLaughlin (1997).

Figure 3.—Percentage distribution of private school FTE teachers, by typology



SOURCE: U.S. Department of Education, National Center for Education Statistics, Private School Survey (PSS), 1997–98.

were teaching in schools with a regular elementary/secondary program emphasis. As in the case of students, fewer than 5 percent of private school FTE teachers were teaching in schools featuring any one of the other categories of program emphasis.

Kindergarten-terminal schools

Since 1995, schools for which kindergarten was the highest grade have been included in the PSS. In the fall of 1997, there were 6,493 of these schools enrolling 103,061 students and employing 14,816 FTE teachers nationwide. When the kindergarten-terminal schools are combined with the traditional PSS schools, the total number of schools becomes 33,895, with 5,179,181 students and 391,360 FTE teachers. Almost 7 out of 10 of the kindergarten-terminal schools were nonsectarian (69 percent), 28 percent were other religious, and 3 percent were Catholic.

By definition, all of these schools were classified as elementary, and almost all of them enrolled fewer than 150 students. Approximately 80 percent of these schools emphasized an early childhood program, 18 percent emphasized a Montessori program, and fewer than 5 percent each emphasized any one of the other program emphases.

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Data source: The NCES Private School Survey (PSS), 1997–98.

For technical information, see the complete report:

Broughman, S.P., and Colaciello, L.A. (1999). *Private School Universe Survey: 1997–98* (NCES 1999–319).

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To obtain the complete report (NCES 1999–319), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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Key Statistics on Public Elementary and Secondary Schools and Agencies: School Year 1995–96

Lee Hoffman

This article was excerpted from the report of the same name. The universe data are from the NCES Common Core of Data (CCD).

Introduction

This report provides information about the organization, students, staff, and financial resources of public elementary and secondary education agencies and schools in the United States during the 1995–96 school year. The purpose is to make this information widely available through a comprehensive set of tables and summary text.

The information is taken from the Common Core of Data (CCD) survey system. The CCD consists of data provided voluntarily each year by the education agencies of the 50 states, the District of Columbia, the Department of Defense Dependents Schools (overseas), and five outlying areas.[1]

The CCD surveys include the "Public Elementary/ Secondary School Universe Survey" and "Local Education Agency Universe Survey," which are the major focus of this report. Data from the CCD "State Nonfiscal Survey of Public Elementary/Secondary Education" and "National Public Education Financial Survey" also are used in the analyses, as is finance information from the CCD "School District Financial Survey (Form F-33)," collected through the U.S. Bureau of the Census' "Annual Survey of Government Finances: School Systems."

Characteristics of Public Schools and Agencies

During the 1995–96 school year, there were more than 16,000 local education agencies in the 50 states and the District of Columbia, and almost 15,000 of these were regular school districts directly responsible for providing free public education to pupils in their jurisdictions (figure A). These education agencies administered more than 87,000 public schools. Most of these, some 81,000, were regular schools. About 1,000 others were vocational schools, 2,000 were special education schools, and approximately 3,000 were reported as other or alternative school types.

The 15 years preceding the 1995–96 school year saw a 10 percent increase in the number of public school students (table A). At the same time, the average size of districts and schools[2] increased by 17 and 8 percent, respectively, while the average pupil/teacher ratio decreased by 1.4 pupils.

Three out of 10 public schools enrolled fewer than 300 children in 1995–96. About 2 out of 5 schools were in towns or rural communities; these schools tended to be relatively small, and enrolled only about 1 out of 4 students (figure B). About one-third of public school students were found in the schools of large or mid-size cities.

About half of public school students (51 percent) were enrolled in primary schools, 20 percent were in middle schools, and 27 percent were in high schools. Only 3 percent were in schools of some other grade configuration (including ungraded schools).

Overall, middle schools were slightly larger than high schools and considerably larger than primary schools. The median size of a primary school in 1995–96 was 428 students; that of a middle school, 567 students; and a high school, 539. Schools that represented some other grade configuration tended to be much smaller, with half reporting fewer than 167 students.

Public School Students and Outcomes

There were about 45 million public school students in 1995–96. Of these, two-thirds were white, non-Hispanic. About 1 in 6 was black, non-Hispanic, and 1 in 7 was Hispanic. Among the 40 states that reported the number of students eligible for the federal Free Lunch Program, 23 states reported free-lunch data for schools in large cities. In 10 of these 23 states, half or more of the students in the large-city school districts were eligible.

Almost 2.3 million students received a regular high school diploma in 1995–96. Among the 29 states reporting dropouts, two-thirds had a dropout rate of under 5 percent across grades 9–12. However, the dropout rate among Hispanic students was 10 percent or more in 11 reporting states.

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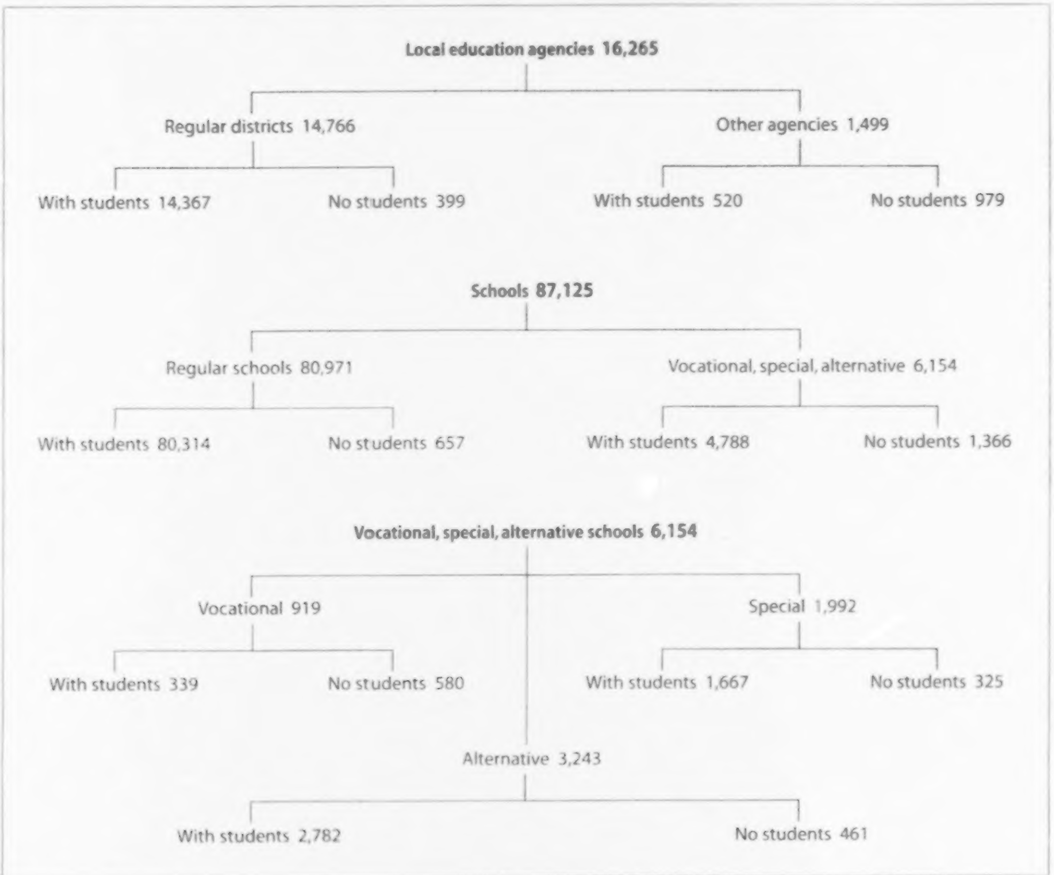
[1] This article is limited to the 50 states and the District of Columbia (collectively referred to as "the states"). In the complete report, information on the Department of Defense Dependents Schools and outlying areas is provided primarily in the tables.

[2] The size of a district or school is defined as the number of students in membership (enrolled) on October 1 or the school day closest to that date.

Figure A.—Types and numbers of local education agencies and schools: School year 1995–96


Local education agencies 16,265
Regular districts 14,766
Other agencies 1,499
With students 14,367
No students 399
With students 520
No students 979
Schools 87,125
Regular schools 80,971
Vocational, special, alternative 6,154
With students 80,314
No students 657
With students 4,788
No students 1,366
Vocational, special, alternative schools 6,154
Vocational 919
Special 1,992
With students 339
No students 580
With students 1,667
No students 325
Alternative 3,243
With students 2,782
No students 461

NOTE: Vocational, alternative, and special schools may report no students because they provide services to students whose membership is reported by another school.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey," 1995–96.

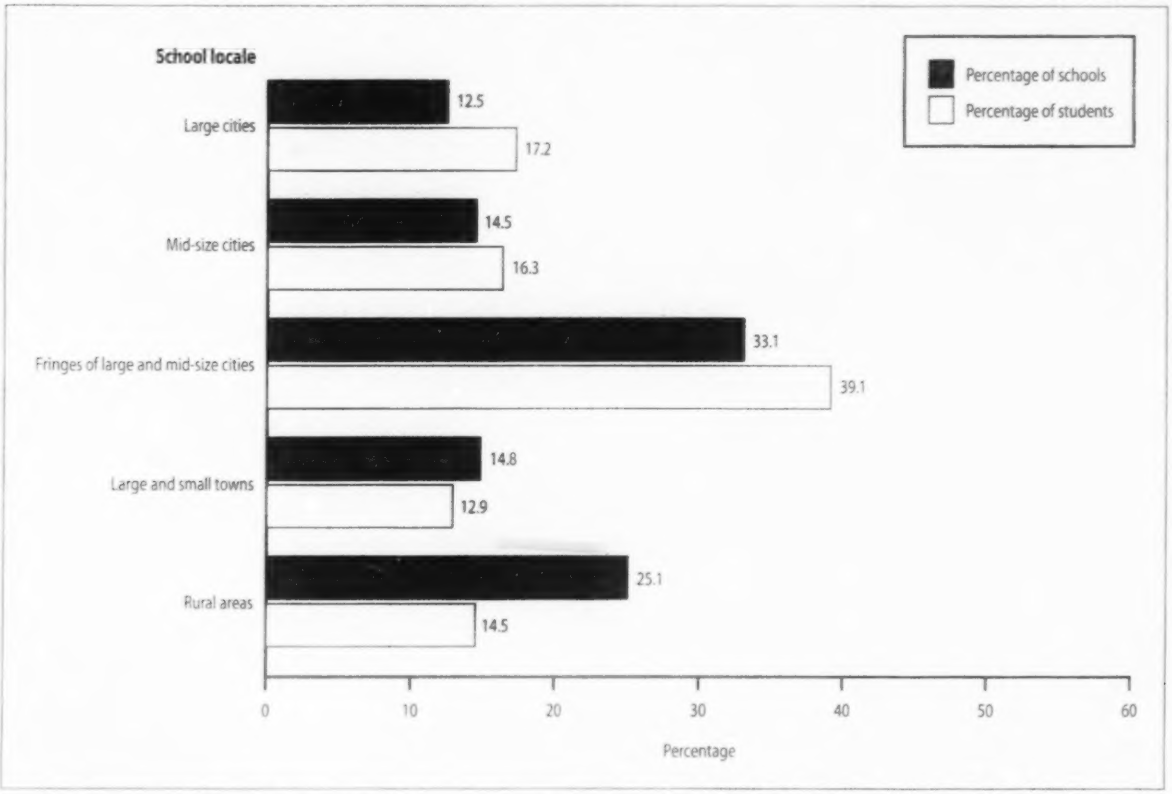
Table A.—Numbers of education agencies, schools, and students: 1980–81 and 1995–96

	1980	1995	15-year change
School districts	15,912	14,766	- 7.2 percent
Average number of students per district	2,569	3,012	+ 17.2 percent
Schools	85,987	87,125	+ 1.3 percent
Average number of students per school	475	515	+ 8.4 percent
Pupil/teacher ratio	18.7	17.3	-1.4 pupils
Total students	40,877,481	44,840,481	+ 9.7 percent

NOTE: All districts in 1980 are compared with regular districts in 1995 to compensate for expansion of CCD coverage after 1980. "Average student" ratios include districts and schools with and without membership, and do not agree with average school and district sizes reported elsewhere.

SOURCE: U.S. Department of Education, National Center for Education Statistics: (1996 and 1997) *Digest of Education Statistics* (NCES 96-133 and NCES 98-015); Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey," 1995–96.

Figure B.—Percentage of schools and students in different locales: School year 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey," 1995–96. (Originally published as figure D on p. 7 of the complete report from which this article is excerpted.)

Public School Staff

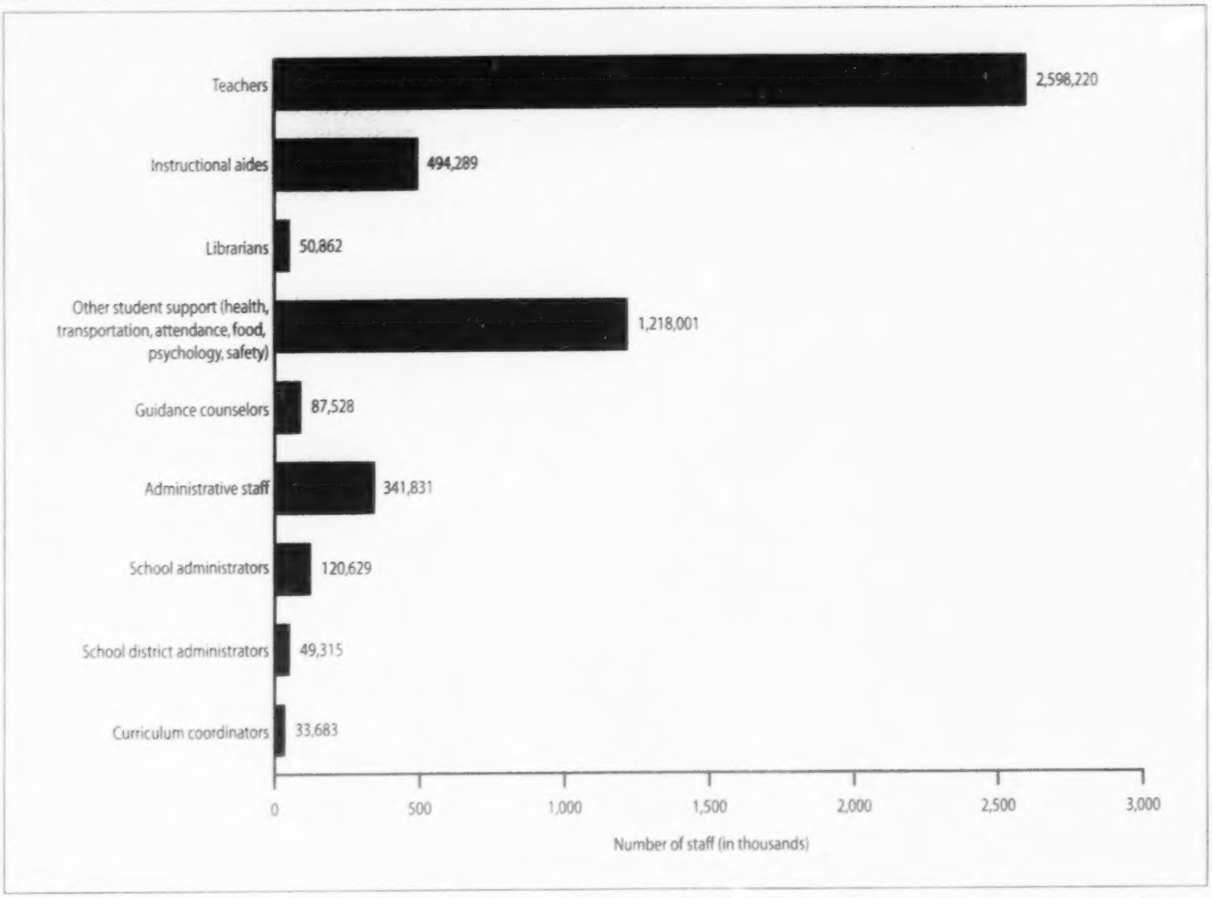
The almost 2.6 million teachers reported in 1995–96 accounted for more than half of the almost 5 million local public education employees (figure C). When instructional aides and all library and media staff are added to this figure, almost two-thirds of all employees provided direct instructional services to students. Another 1.3 million personnel delivered student support services such as guidance counseling, and health, attendance, food, and transportation services. The approximately 170,000 school and school district administrators made up about 3 percent of the education staff reported.

The smallest districts (those with fewer than 2,500 students) tended to have fewer teachers for each administrator and more teachers for each student support staff member than the largest districts (those with 25,000 or more students). Thus, among the 34 states that had districts in both the largest and smallest size categories, 47 percent of states reported average teacher/administrator ratios of less than 12 to 1 for their smallest districts, while only 12 percent of states reported ratios this small for their largest districts. Conversely, 41 percent of states reported teacher/support staff ratios of less than 1.5 to 1 for their largest districts, while only 20 percent reported ratios this small for their smallest districts.

School District Revenues and Expenditures

Revenues and current expenditures varied by state and by school district size. In 1994–95, 31 states reported that they had districts with fewer than 12,500 students as well as districts with at least 25,000 students. In about two-thirds of these states, average per pupil revenues and expenditures were higher in the school districts serving at least 25,000 students than in those serving fewer than 12,500 students. However, the highest amounts reported were not in the districts with at least 25,000 students. Expenditures in these large districts ranged from more than $8,000 per pupil in two reporting states to less than $3,500 per pupil in one state. In districts with fewer than 12,500 students, however, the range was from more than $9,000 in two reporting states to less than $4,000 in four states.

Figure C.—Public education elementary and secondary staff totals: School year 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1995–96. (Originally published as figure I on p. 46 of the complete report from which this article is excerpted.)

Data sources: The following components of the NCES Common Core of Data (CCD): "Public Elementary/Secondary School Universe Survey," 1995–96; "Local Education Agency Universe Survey," 1994–95 and 1995–96; "State Nonfiscal Survey of Public Elementary/Secondary Education," 1995–96; "National Public Education Financial Survey," 1995–96; and "School District Financial Survey (Form F-33)," 1994–95.

For technical information, see the complete report:

Hoffman, L. (1999). *Key Statistics on Public Elementary and Secondary Schools and Agencies: School Year 1995–96* (NCES 1999–324).

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To obtain the complete report (NCES 1999–324), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

POSTSECONDARY EDUCATION

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Enrollment Patterns of First-Time Beginning Postsecondary Students

This article was originally published as an Indicator of the Month, taken from* The Condition of Education: 1998*. The sample survey data are from the Beginning Postsecondary Students Longitudinal Study (BPS) and the National Postsecondary Student Aid Study (NPSAS).

Individuals deciding to pursue postsecondary education have a number of options. They can choose, for example, to enroll in a short-term vocational program offered at a less-than-2-year institution, an associate's degree program at a 2-year college, or a bachelor's degree program at a public or private 4-year institution. Alternatively, they can enroll in courses to earn a certificate, develop job skills, or pursue personal interests. Enrollment patterns provide an indication of how students are using the postsecondary education system.

- In 1995–96, about 40 percent of all first-time beginning postsecondary students enrolled in 4-year institutions (25 percent at public institutions and 15 percent at private, not-for-profit institutions) (table 1). Another 46 percent enrolled in public 2-year institutions. The overall enrollment pattern of 1995–96 first-time beginners resembles that of their 1989–90 counterparts.
- In 1995–96, 25 percent of financially dependent students from families with incomes of $60,000 or more enrolled in private, not-for-profit 4-year institutions, a considerably higher percentage than that for students from families with incomes in the $30,000 to $59,999 range (16 percent) or with incomes less than $30,000 (14 percent) (table 1 and figure 1a).
- Among students who enrolled in less-than-4-year institutions, the primary reasons for enrolling varied by age (table 1 and figure 1b). For example, 18- to 19-year-olds were more likely to cite transferring to a 4-year institution as their primary reason for enrolling, while students age 20 or older were more likely to cite obtaining job skills as their primary reason for enrolling.

Table 1.—Percentage distribution of first-time beginning postsecondary students, by type of institution, primary reason for enrolling in a less-than-4-year institution, and selected student and institutional characteristics: Academic years 1989–90 and 1995–96

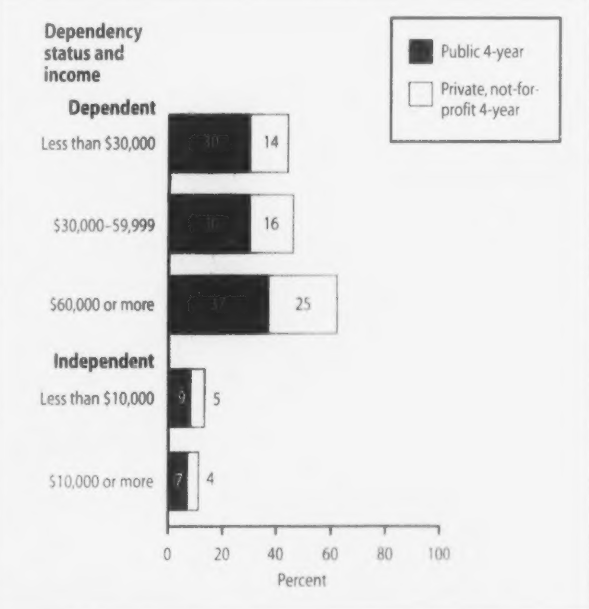
	Type of institution					Primary reason for enrolling in a less-than-4-year institution			
Selected student and institutional characteristics	Public 4-year	Public 2-year	Private, not-for-profit 4-year	Private, for-profit	Other	Obtain job skills	Earn degree or certificate	Transfer to a 4-year institution	Other
Academic year 1989–90									
Total	27.6	44.8	13.2	10.4	4.0	—	—	—	—
Academic year 1995–96									
Total	25.4	45.7	14.5	11.3	3.2	33.0	20.3	28.9	17.8
Dependency status and income									
Dependent, less than $30,000	30.0	43.3	14.4	9.7	2.6	25.2	24.1	31.5	19.2
Dependent, $30,000–59,999	30.1	47.0	16.4	4.6	2.0	21.5	18.6	41.0	18.9
Dependent, $60,000 or more	37.3	34.3	24.8	2.5	1.2	13.2	16.3	56.0	14.5
Independent, less than $10,000	8.6	46.4	4.7	34.9	5.4	50.3	18.4	14.6	16.8
Independent, $10,000 or more	7.1	61.8	4.1	19.9	7.1	50.9	22.4	8.4	18.4
Age as of 12/31/95									
18–19	32.5	41.2	18.9	5.7	1.7	20.2	20.3	43.2	16.3
20–23	19.0	48.6	7.8	19.8	4.9	39.2	23.5	17.1	20.1
24 or older	6.7	58.0	4.3	24.0	7.0	54.4	18.8	8.1	18.6
Type of institution									
Public 2-year	—	100.0	—	—	—	22.6	21.4	36.7	19.3
Private, for-profit	—	—	—	100.0	—	69.0	16.6	1.3	13.0

—Not available or not applicable.

NOTE: Details may not add to 100 due to rounding.

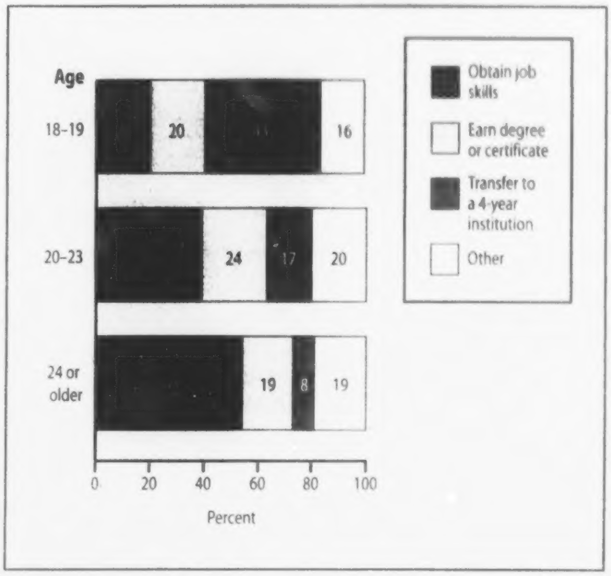
SOURCE: U.S. Department of Education, National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study (BPS:1990/1994) and National Postsecondary Student Aid Study (NPSAS:1996).

Figure 1a.—Percentage of first-time beginning postsecondary students enrolling in public and private, not-for-profit 4-year institutions, by dependency status and income: Academic year 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS:1996).

Figure 1b.—Percentage distribution of first-time beginning postsecondary students in less-than-4-year institutions, by primary reason for enrolling and age: Academic year 1995–96



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS:1996).

Data sources: NCES Beginning Postsecondary Students Longitudinal Study (BPS:1990/1994) and National Postsecondary Student Aid Study (NPSAS:1996).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education: 1998* (NCES 98-013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education: 1998 (http://nces.ed.gov/pubs98/condition98/index.html)*, or
- volume 2 of the printed version (1999): *The Condition of Education: 1998 Supplemental and Standard Error Tables* (NCES 1999-025).

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Employer Aid for Postsecondary Education

John B. Lee and Suzanne B. Clery

This article was excerpted from the Highlights and Introduction of the report of the same name. The sample survey data are from the National Postsecondary Student Aid Study (NPSAS) and the National Household Education Survey (NHES).

Introduction

Employers are interested in helping their employees continue their education. According to the National University Continuing Education Association (NUCEA), 90 percent of companies currently offer continuing education benefits and 97 percent plan to offer them by the year 2000 (NUCEA 1996). Another survey found that 75 percent of the surveyed employers provided tuition benefits (University of Pennsylvania 1997). NUCEA reports that the benefit ranks above child care, flextime, and family leave benefits in popularity with employees.

This report examines the utilization of employer aid. This includes the description of the types of employees and educational and training programs that employers support. Two National Center for Education Statistics (NCES) data sets provided the data for this report: the "Adult Education" component of the 1995 National Household Education Survey (NHES:1995) and the 1995–96 National Postsecondary Student Aid Survey (NPSAS:1996). NHES provides information describing all educational activities of adults, including enrollment in credential, adult basic skills, work-related, and other structured training or educational programs. NPSAS, which represents students of all ages and backgrounds at all types of accredited postsecondary institutions, provides detailed information about how employers help students pay for their education if they attended a postsecondary institution.

Highlights

The central purpose of this report is to describe the use of employer-provided financial aid by students seeking a degree or credential. According to NHES, 13 percent of adults participated in credential programs in 1995. That was less than either the 21 percent of adults who participated in work-related programs or the 20 percent who participated in other structured programs. Forty-one percent of the adults in credential programs were seeking bachelor's degrees (figure A). Another 19 percent were seeking associate's degrees. In some cases, a credential program may include professional certification.

Employer aid for different types of employees

One-half of adults who were executives, administrators, and managers who enrolled in credential programs received financial assistance from their employers. This compared with 10 percent of the employees who were in marketing and sales, and 4 percent of those who were handlers, cleaners, helpers, or laborers.

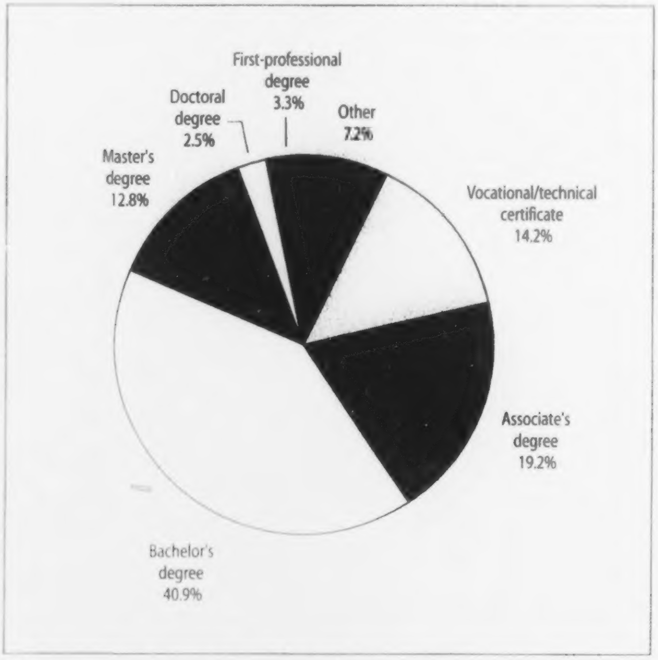
Seventy-two percent of adults employed as engineers, surveyors, or architects who enrolled in credential programs received financial assistance from their employers. That was more than those who were social scientists or lawyers; teachers, except for postsecondary; writers, artists, entertainers, or athletes; health technologists; in marketing and sales; administrative support; service; construction; production; transportation and material moving; or handlers, cleaners, helpers, and laborers.

Adults who worked part time were less likely to receive employer financial aid if they enrolled in credential programs than those who worked full time. Seven percent of adults who worked part time received financial assistance from their employers if they took credential programs compared with 37 percent of those who worked full time.

Employer aid for undergraduates

NPSAS data indicate that 6 percent of all undergraduates received financial aid from their employer. Four percent of the undergraduates who perceived themselves as students who worked received employer financial aid compared with 25 percent of those who defined themselves as undergraduate employees. The following findings are limited to undergraduate employees (employed undergraduates who considered themselves primarily employees rather than students).

Figure A.—Percentage distribution of adults enrolled in credential programs according to highest level program enrolled in: 1995



NOTE: Percentages may not sum to 100 percent due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES:1995), 1995 Adult Education Data Analysis System. (Originally published as figure 3 on p.11 of the complete report from which this article is excerpted.)

The control of the institution was related to the probability of receiving employer financial aid (table A). Forty-six percent of the undergraduate employees who attended private, not-for-profit institutions received employer financial aid compared with 23 percent of those who attended public institutions.

The level of program in which students were enrolled also related to the probability of receiving employer financial aid (table A). Thirty-four percent of the undergraduate employees who were enrolled in bachelor's degree programs received employer financial aid compared with 23 percent of those enrolled in associate's degree programs, and 18 percent of those enrolled in certificate programs. Undergraduate employees who enrolled in business programs were more likely to receive employer financial aid than were those in the humanities, social and behavioral sciences, education, and life sciences.

The average employer financial aid amount awarded to undergraduate employees was $932, and ranged from $432 for those attending institutions with tuition and fees below $1,000 to $3,437 for those attending institutions with tuition and fees between $5,000 and $7,499 (table A). Employer financial aid recipients in public institutions received $510 compared with $2,321 received by those in private, not-for-profit institutions.

Table A.—Percentage of undergraduate employees* who received employer financial aid, and average employer financial aid award received, by selected characteristics: 1995–96

	Received employer financial aid	Average employer financial aid received
Total	24.9%	$932
Degree program during first term		
Certificate or award	18.2	850
Associate's degree	23.0	490
Bachelor's degree	33.8	1,890
Undergraduate, non-degree program	28.8	359
Undergraduate field of study		
Humanities	14.6	875
Social, behavioral sciences	15.1	1,399
Life sciences	14.2	—
Physical sciences	—	—
Mathematics	—	—
Computer, information science	35.9	1,194
Engineering	34.7	806
Education	14.7	—
Business, management	34.9	1,239
Health	23.9	1,134
Vocational, technical	21.2	—
Other technical, professional	18.9	666
Institutional control		
Public	23.0	510
Private, not-for-profit	45.6	2,321
Private, for-profit	10.9	2,704
Tuition and fees for terms attended		
Less than $1,000	24.5	432
$1,000–2,499	25.6	1,399
$2,500–4,999	30.5	2,781
$5,000–7,499	23.3	3,437
$7,500–9,999	15.4	—
$10,000 or more	26.8	—

—Sample size too small for a reliable estimate.

*Undergraduate employees are employed undergraduates who considered themselves primarily employees who enrolled in school, about 36 percent of all employed undergraduates.

NOTE: Total is not within the range of some of the subgroup estimates due to the number of observations with missing values within the subgroup.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Study (NPSAS:1996), Undergraduate Data Analysis System. (Taken from table 11 on pp. 53–57 of the complete report from which this article is excerpted.)

Employer aid for graduate students

Thirteen percent of graduate and first-professional students (this category includes doctors, lawyers, and theologians) received employer financial aid (table B). Master's degree students were more likely to receive employer financial aid than were doctoral or first-professional students. Sixteen percent of master's degree students received employer financial aid compared with 5 percent of the doctoral and first-professional students.

The average employer financial aid amount awarded to graduate students was $2,451 (table B). Male recipients received a higher average amount of employer financial aid than females. Males received an average employer financial aid award of $2,987 compared with $1,980 received by females.

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Table B.—Percentage of graduate students who received employer financial aid, and average employer financial aid award received, by gender and degree program: 1995–96

	Received employer financial aid	Average employer financial aid received
Total	12.5%	$2,451
Gender		
Male	12.6	2,987
Female	12.5	1,980
Degree program during first term 1995–96		
Postbaccalaureate certificate	13.0	1,524
Master's degree	15.9	2,620
Doctoral or first-professional degree	4.8	3,357
Other graduate program	12.2	1,272

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Postsecondary Student Aid Survey (NPSAS:1996), Graduate and First-Professional Data Analysis System. (Taken from table 13 on pp. 61–64 of the complete report from which this article is excerpted.)

Data sources: The NCES National Postsecondary Student Aid Study (NPSAS:1996) and National Household Education Survey (NHES:1995), "Adult Education" component.

For technical information, see the complete report:

Lee, J.B., and Clery, S.B. (1999). *Employer Aid for Postsecondary Education* (NCES 1999–181).

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New Entrants to the Full-Time Faculty of Higher Education Institutions

Martin J. Finkelstein, Robert Seal, and Jack H. Schuster

This article was excerpted from the Highlights and Sections 1 and 6 of the Statistical Analysis Report of the same name. The sample survey data are from the National Study of Postsecondary Faculty (NSOPF).

Introduction

Starting in the mid-1950s, many thousands of faculty members, often without doctoral degrees, were hired to staff the rapid expansion of higher education (Cartter 1976). By the late 1960s, however, a new cohort of faculty, more research oriented than their predecessors, began to replace them. It is these "teacher-scholars" who have largely reshaped our current system in the image of their own collective career aspirations and values (Jencks and Riesman 1968). Now a new academic generation is beginning to emerge as their successors, a product of different pressures and priorities. In some respects, they can expect to be less influential in the face of powerfully determinative demographic, economic, and technological forces that are transforming higher education. And yet, despite the environmental constraints, this cohort of recent hires, in view of its large size, is certain to play an influential, long-term role in how our national higher education system evolves. Accordingly, if we understand who these new faculty members are and what values they bring to their classrooms and laboratories, we will have provided an important lens through which to view higher education's future path.

The 1993 National Study of Postsecondary Faculty (NSOPF:1993) permits the delineation of this new academic generation—which is defined as the cohort of full-time faculty members in the first 7 years of their academic careers[1] —and allows us to examine how this subgroup of faculty compares to a more senior cohort of full-time faculty on a wide variety of demographic and career variables. Faculty described in this report represent a subgroup of faculty and instructional staff included in NSOPF:1993, namely, those full-time faculty whose principal activity during the fall of 1992 was teaching, research, or administration (at the level of program director, department chairperson, or dean). The remainder of this article highlights key findings from the report.

Highlights

Cohort size and distribution

- About 172,000 full-time faculty were in the first 7 years of an academic career, constituting one-third of the entire full-time faculty (table A).
- The new cohort disproportionately represented fields outside the liberal arts: 51 percent of the new cohort but only 45 percent of the senior cohort had their programmatic home outside the humanities, the social and natural sciences, and the fine arts.

Demographic characteristics

- Females constituted 41 percent of the new faculty, 28 percent of the senior cohort, and 33 percent of the full-time faculty overall.
- Racial/ethnic minorities constituted one-sixth (17 percent) of the new cohort, one-ninth of the senior cohort (12 percent), and 13 percent of the full-time faculty overall.
- Faculty who are not native-born U.S. citizens constituted one-sixth (17 percent) of the new cohort (25 percent in the natural sciences), one-ninth (12 percent) of the senior cohort (14 percent in the natural sciences), and 13 percent of the full-time faculty overall.

Educational background and work history

- New faculty, like senior faculty, earned their highest degree in their early thirties (ages 31–32), but did not assume their current position, on average, until about 7 years later, compared to about 4 years later for the senior faculty.
- New faculty were more likely than senior faculty to have had prior work experience and, indeed, work experience outside academe prior to assuming the position they held in the fall of 1992.

Types of appointments and job/career satisfaction

- One-third (33 percent) of the new cohort were in non-tenure-eligible positions as compared to one-sixth of the senior faculty (16 percent), and females among new cohort faculty were more likely than males to hold such non-tenure-eligible appointments (40 versus 28 percent, respectively).

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[1] The terms "new academic generation cohort," "new entrants," "new cohort," or "new faculty" are used interchangeably in this report to depict these faculty.

- New faculty were more likely to be dissatisfied with their job security and their prospects for advancement than senior faculty, but five out of six of both new and senior cohort faculty were satisfied with their careers overall.

Implications for the Future Faculty and Their Work

In considering the implications of the changing characteristics of the new generation of academics, the starting point must be the large size of this cohort. Because the new-entrant cohort is so large—fully one-third of all full-time faculty—it is likely to have a much more pervasive influence in shaping academic values and practices in the years ahead than if the new cohort had been substantially smaller. What, then, are the implications that can be drawn from this sizable cohort's characteristics?

First, the new cohort is demographically different from the senior cohort. White males were the dominant presence in the older cohort. With the increasing presence of women and minority faculty, the white males' "share" has shrunk—although they still maintain their overall plurality.

Second, the proportion of the faculty within the traditional arts and science fields is shrinking, with concomitant expansion in the proportion of faculty in the professions and occupational programs. The liberal arts core of higher education is declining numerically, and that will likely mean a weakening among the faculty of the values associated with doctoral education in the traditional arts and sciences.

Third, the proportion of faculty who are tenurable (either tenured or tenure-track) is shrinking. As increasing numbers of faculty appointments are made in other categories—some short term, others longer term, but all less closely coupled with the host institution and its future—the proportion of tenure-track positions is contracting.[2]

Fourth, it appears that different sectors within higher education are being affected differently by prevailing conditions. That is, data from NSOPF:1993 suggested that

Table A.—Percentage distribution of full-time faculty, by faculty seniority and type and control of institution: Fall 1992

Type and control of institution	All faculty[1]		New faculty[2]		Senior faculty[2]		New faculty as percent of all faculty
	Number	Percent	Number	Percent	Number	Percent	
All institutions	514,976	100.0	172,319	100.0	342,657	100.0	33.5
All research institutions	141,593	27.5	50,867	29.5	90,727	26.5	35.9
Public	108,309	21.0	37,085	21.5	71,224	20.8	34.2
Private	33,284	6.5	13,782	8.0	19,502	5.7	41.4
All other doctorate-granting institutions[3]	76,207	14.8	26,361	15.3	49,845	14.6	34.6
Public	50,581	9.8	17,028	9.9	33,553	9.8	33.7
Private	25,626	5.0	9,333	5.4	16,293	4.8	36.4
All comprehensive institutions	131,418	25.5	39,929	23.2	91,490	26.7	30.4
Public	93,877	18.2	28,017	16.3	65,860	19.2	29.8
Private	37,541	7.3	11,912	6.9	25,630	7.5	31.7
Private liberal arts institutions	37,426	7.3	12,662	7.4	24,764	7.2	33.8
Public 2-year institutions	103,529	20.1	33,283	19.3	70,246	20.5	32.2
All other institutions[4]	24,803	4.8	9,217	5.4	15,586	4.6	37.2

[1] Includes full-time faculty who reported their principal activity during fall 1992 was teaching, research, or selected administration activities.

[2] New full-time faculty are defined as having 7 years or less in a full-time faculty position, whereas senior faculty are those who had more than 7 years in a full-time faculty position.

[3] Includes medical schools.

[4] Includes public liberal arts, private 2-year, and other specialized institutions except medical schools.

NOTE: Details may not add to total because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Study of Postsecondary Faculty (NSOPF:1993). (Originally published as table 2.1 on p. 7 of the complete report from which this article is excerpted.)

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[2] A parallel development is the growing number of faculty and instructional staff who are employed part time—an estimated 435,735 in the fall of 1992 (NSOPF:1993 unpublished data).

faculty in some types of institutions were faring better than their counterparts in other types of institutions. In particular, new faculty at 2-year community colleges defied the trend of declining job satisfaction perceptible in other institutional sectors: they were as satisfied as their senior, more established colleagues. Moreover, faculty at 2-year community colleges were the most satisfied with their salary and benefits. Faculty at private liberal arts colleges were least satisfied overall—senior as well as new entrants.

In sum, the faculty responses to NSOPF:1993 provide a lens through which the future of the academic profession and, indeed, of higher education can be viewed. The lens may be more translucent than clear; unpredictable events will intervene to recast higher education's future. But the view from the vantage point afforded by this survey presages a faculty more richly diverse in their origins and in the careers they are pursuing.

References

Cartter, A.M. (1976). *PhDs and the Academic Labor Market.* New York: McGraw-Hill.

Jencks, C., and Riesman, D. (1968). *The Academic Revolution.* New York: Doubleday.

Data source: The NCES National Study of Postsecondary Faculty (NSOPF:1993).

For technical information, see the complete report:

Finkelstein, M.J., Seal, R., and Schuster, J.H. (1998). *New Entrants to the Full-Time Faculty of Higher Education Institutions* (NCES 98-252).

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Salaries and Tenure of Full-Time Instructional Faculty on 9- and 10-Month Contracts: 1997–1998

Patricia Q. Brown

This article was originally published as an E.D. Tabs report. The universe data are from the "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey," part of the NCES Integrated Postsecondary Education Data System (IPEDS). The technical appendixes from the original report have been omitted.

Introduction

This report presents detailed tabulations for academic year 1997–98 of the number, tenure, and average salaries of full-time instructional faculty on 9- and 10-month contracts. These data are from the "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" on 9- and 10-month and 11- and 12-month contracts; this survey is a component of the Integrated Postsecondary Education Data System (IPEDS) of the U.S. Department of Education's National Center for Education Statistics (NCES).

NCES has collected data on full-time instructional faculty since 1968. From 1968 to 1985, these data were collected under the Higher Education General Information Surveys (HEGIS). HEGIS was limited to higher education institutions that were accredited at the college level by an agency recognized by the U.S. Secretary of Education. In 1986, HEGIS was superseded by IPEDS, which collects data from all postsecondary institutions. Although IPEDS encompasses the entire spectrum of postsecondary education institutions, data on the number, salary, tenure, and fringe benefits of full-time instructional faculty have been collected only from the types of institutions that were formerly in the HEGIS universe.

Data in this report present faculty salaries for the 1997–98 academic year at all degree-granting postsecondary institutions that are eligible for Title IV federal financial aid. The U.S. Department of Education no longer distinguishes among institutions based upon accreditation status, and NCES cannot obtain updated lists of "higher education" institutions as defined in previous reports. In lieu of this designation, NCES has subset the postsecondary institutional universe on the basis of whether or not institutions grant a degree, information that is available directly from IPEDS data. Additionally, because eligibility for Title IV federal financial aid has reporting implications and is of particular policy interest, the postsecondary institution universe is further subdivided into those schools that are eligible for Title IV federal financial aid and those that are not eligible. Title IV eligibility is based on lists of eligible institutions maintained by the Office of Postsecondary Education, U.S. Department of Education.

Average Faculty Salaries in 1997–98

In 1997–98, the salaries of full-time instructional faculty on 9- and 10-month contracts averaged $52,335 in degree-granting institutions for all ranks combined (tables 1 and 5). Average salaries varied by academic rank and ranged from $68,731 for professors to $32,449 for instructors on 9- and 10-month contracts.

For all ranks combined, average salaries were $11,000 higher at 2-year public institutions than at 2-year private, non-profit institutions. When examined by academic rank, the difference increased to about $15,400 for professors, about $12,400 for associate professors, and almost $9,300 for assistant professors (table 1).

In 1997–98, degree-granting institutions reported that 60 percent of the total faculty on 9- and 10-month contracts were tenured (233,336 out of 386,495). When examined by gender, men constituted 71 percent of the tenured faculty at degree-granting institutions. California reported that 74 percent of its 37,048 full-time instructional faculty on 9- and 10-month contracts were tenured. California also reported the largest number of full-time instructional faculty at degree-granting institutions (tables 2 through 4).

Average salaries for all ranks combined for faculty in private, non-profit degree-granting institutions were higher than for faculty in public degree-granting institutions. By rank, however, only professors and lecturers earned more in private, non-profit institutions than in public institutions. Associate and assistant professors, instructors, and those with no academic rank had higher average salaries in public institutions than in private, non-profit institutions (tables 6 and 7).

The salaries of full-time instructional faculty on 9- and 10-month contracts in public institutions in California, Connecticut, and New Jersey averaged over $60,000 per year. In contrast, the salaries of full-time instructional faculty on 9- and 10-month contracts in public institutions in North Dakota and South Dakota were under $40,000 per year (table 6).

Faculty in 4-year degree-granting institutions had significantly higher salaries than those in 2-year degree-granting institutions. On average, faculty in 4-year schools earned over $8,000 more per year than those in 2-year institutions. Those faculty in the academic ranks of professor, associate professor, and assistant professor had higher average salaries in 4-year institutions than in 2-year institutions, while those faculty in the ranks of instructor and lecturer and those with no academic rank had higher average salaries in 2-year than in 4-year institutions (tables 8 through 11).

Among the states, average salaries for full-time instructional faculty in public 4-year degree-granting institutions were higher in California than in any other state. South Dakota was the only state where full-time instructional faculty in public 4-year institutions earned an average salary of less than $40,000 (table 9).

At degree-granting institutions, male faculty earned about $10,300 more than female faculty, all ranks combined. This disparity is greater than any difference within a rank because relatively few women are reported in the senior faculty ranks. Within faculty ranks, the differential between men's and women's salaries was highest among professors and decreased with decreasing rank. Among professors, men's salaries averaged about $8,500 more than women's salaries; among associate professors, the difference in average salaries was about $3,400; among assistant professors, it was about $2,500; and among instructors, it was less than $1,100 (tables 12 and 13).

Data source: The NCES Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA:1997–98).

For technical information, see the complete report:

Brown, P.Q. (1999). *Salaries and Tenure of Full-Time Instructional Faculty on 9- and 10-Month Contracts: 1997–1998* (NCES 1999–193).

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Table 1.—Average salaries of full-time instructional faculty, on 9- and 10-month contracts, in Title IV eligible degree-granting institutions, by academic rank, level, and control: Academic year 1997–98

Control and level	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
Total	$52,335	$68,731	$50,828	$41,830	$32,449	$35,484	$45,268
4-year	54,211	70,441	51,351	42,105	31,787	35,431	38,644
2-year	45,652	54,323	45,811	39,306	34,238	36,608	45,801
Public	51,638	66,937	50,948	42,147	32,627	34,608	45,812
4-year	54,114	69,195	51,732	42,582	31,519	34,516	38,614
2-year	45,919	54,488	46,078	39,623	34,713	36,199	45,993
Private							
Non-profit	54,169	72,627	50,601	41,266	32,121	38,376	39,002
4-year	54,443	72,747	50,701	41,357	32,325	38,376	39,385
2-year	34,920	39,135	33,721	30,335	26,638	—	37,814
For-profit	27,441	34,422	29,505	23,197	22,036	33,887	28,145
4-year	29,027	34,693	30,173	24,843	28,105	—	29,709
2-year	25,788	(*)	27,232	22,022	20,883	42,226	22,022

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 2.—Number of tenured full-time instructional faculty, on 9- and 10-month contracts, in Title IV eligible degree-granting institutions, by academic rank, level, and control: Academic year 1997–98

Control and level	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
Total	233,336	114,411	79,783	14,167	1,503	140	23,332
4-year	188,465	103,823	73,063	10,347	545	140	547
2-year	44,871	10,588	6,720	3,820	958	0	22,785
Public	170,685	79,469	56,163	10,994	1,437	109	22,513
4-year	126,327	68,941	49,493	7,207	485	109	92
2-year	44,358	10,528	6,670	3,787	952	0	22,421
Private							
Non-profit	62,638	34,938	23,620	3,173	66	31	810
4-year	62,134	34,878	23,570	3,140	60	31	455
2-year	504	60	50	33	6	0	355
For-profit	13	4	0	0	0	0	9
4-year	4	4	0	0	0	0	0
2-year	9	0	0	0	0	0	9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 3.—Number of full-time instructional faculty, on 9- and 10-month contracts, in Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	386,495	121,173	96,410	87,414	20,044	9,226	52,228
Alabama	6,086	1,252	1,437	1,389	502	55	1,451
Alaska	688	185	211	219	29	30	14
Arizona	5,556	1,409	1,149	813	155	216	1,814
Arkansas	3,639	796	770	854	444	33	742
California	37,048	13,965	5,897	4,805	806	667	10,908
Colorado	5,644	2,031	1,421	1,172	294	95	631
Connecticut	5,129	2,114	1,385	1,320	172	113	25
Delaware	1,289	354	387	263	74	18	193
District of Columbia	3,151	1,159	987	747	168	63	27
Florida	12,278	4,017	3,115	2,642	997	133	1,374
Georgia	8,983	2,268	2,610	3,211	694	86	114
Hawaii	1,718	562	443	456	257	0	0
Idaho	2,052	515	403	419	111	12	592
Illinois	18,133	4,869	3,856	3,572	714	352	4,770
Indiana	9,705	2,932	2,764	2,600	445	302	662
Iowa	5,486	1,616	1,463	1,285	329	15	778
Kansas	4,950	1,130	1,134	1,046	194	57	1,389
Kentucky	5,510	1,643	1,847	1,560	312	134	14
Louisiana	6,547	1,759	1,655	1,930	1,071	34	98
Maine	1,840	437	595	441	48	28	291
Maryland	6,685	2,291	1,877	1,667	302	315	233
Massachusetts	14,979	6,718	3,949	3,184	430	439	259
Michigan	12,680	4,070	3,101	2,560	310	485	2,154
Minnesota	8,555	2,312	1,785	1,545	318	21	2,574
Mississippi	4,497	736	671	889	363	73	1,765
Missouri	7,868	2,285	2,122	2,193	473	94	701
Montana	1,645	477	383	403	129	8	245
Nebraska	3,046	775	778	817	133	91	452
Nevada	1,470	535	323	269	180	82	81
New Hampshire	2,058	826	694	474	45	6	13
New Jersey	8,651	3,106	2,393	2,451	501	151	49
New Mexico	2,474	654	627	648	141	109	295
New York	30,812	11,657	8,747	7,340	1,271	1,181	616
North Carolina	10,325	2,858	2,644	2,427	291	483	1,622
North Dakota	1,431	233	444	492	127	76	59
Ohio	15,681	5,037	5,031	4,283	874	122	334
Oklahoma	4,833	1,243	1,062	1,365	505	43	615
Oregon	4,800	1,117	949	805	227	45	1,657
Pennsylvania	20,646	6,863	6,140	5,876	1,267	319	181
Rhode Island	2,556	1,139	748	554	64	51	0
South Carolina	5,945	1,471	1,324	1,192	369	89	1,500
South Dakota	1,440	301	330	412	155	(*)	239
Tennessee	7,826	2,520	2,356	2,081	770	55	44
Texas	23,550	6,399	5,115	4,947	1,418	1,558	4,113
Utah	3,768	1,223	1,038	954	225	78	250
Vermont	1,495	481	431	328	57	73	125
Virginia	10,135	3,225	3,287	2,741	694	118	70
Washington	7,732	1,901	1,355	1,241	250	205	2,780
West Virginia	2,591	839	803	734	174	40	(*)
Wisconsin	9,873	2,664	2,181	1,632	97	303	2,996
Wyoming	1,016	204	193	166	68	67	318

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 4.—Total number of full-time instructional faculty on 9- and 10-month contracts, in Title IV eligible degree-granting institutions, by tenure status, state, and sex: Academic year 1997–98

State	Men with tenure	Total men	Women with tenure	Total women	Faculty with tenure	Total faculty	Percent faculty with tenure
50 States and D.C.	165,922	245,200	67,414	141,295	233,336	386,495	60.4
Alabama	2,582	3,739	1,289	2,347	3,871	6,086	63.6
Alaska	265	426	124	262	389	688	56.5
Arizona	2,365	3,456	1,042	2,100	3,407	5,556	61.3
Arkansas	1,195	2,193	435	1,446	1,630	3,639	44.8
California	18,586	23,648	8,888	13,400	27,474	37,048	74.2
Colorado	2,555	3,734	840	1,910	3,395	5,644	60.2
Connecticut	2,404	3,354	940	1,775	3,344	5,129	65.2
Delaware	506	777	192	512	698	1,289	54.2
District of Columbia	1,418	1,993	596	1,158	2,014	3,151	63.9
Florida	5,399	7,781	2,599	4,497	7,998	12,278	65.1
Georgia	3,191	5,385	1,396	3,598	4,587	8,983	51.1
Hawaii	798	1,072	378	646	1,176	1,718	68.5
Idaho	986	1,462	288	590	1,274	2,052	62.1
Illinois	8,511	11,617	3,616	6,516	12,127	18,133	66.9
Indiana	4,097	6,298	1,314	3,407	5,411	9,705	55.8
Iowa	2,249	3,496	852	1,990	3,101	5,486	56.5
Kansas	2,102	3,175	865	1,775	2,967	4,950	59.9
Kentucky	2,343	3,342	1,142	2,168	3,485	5,510	63.2
Louisiana	2,516	3,935	1,075	2,612	3,591	6,547	54.8
Maine	702	1,164	273	676	975	1,840	53.0
Maryland	2,744	4,094	1,108	2,591	3,852	6,685	57.6
Massachusetts	6,714	9,594	2,812	5,385	9,526	14,979	63.6
Michigan	5,665	8,376	1,974	4,304	7,639	12,680	60.2
Minnesota	2,905	5,389	1,187	3,166	4,092	8,555	47.8
Mississippi	947	2,360	318	2,137	1,265	4,497	28.1
Missouri	3,170	5,041	1,106	2,827	4,276	7,868	54.3
Montana	680	1,102	216	543	896	1,645	54.5
Nebraska	1,231	1,970	355	1,076	1,586	3,046	52.1
Nevada	647	962	246	508	893	1,470	60.7
New Hampshire	815	1,306	315	752	1,130	2,058	54.9
New Jersey	4,108	5,434	1,961	3,217	6,069	8,651	70.2
New Mexico	890	1,525	367	949	1,257	2,474	50.8
New York	14,545	19,669	6,332	11,143	20,877	30,812	67.8
North Carolina	3,784	6,369	1,284	3,956	5,068	10,325	49.1
North Dakota	512	931	173	500	685	1,431	47.9
Ohio	7,423	10,102	2,887	5,579	10,310	15,681	65.7
Oklahoma	1,777	3,076	676	1,757	2,453	4,833	50.8
Oregon	1,752	2,890	857	1,910	2,609	4,800	54.4
Pennsylvania	9,786	13,415	3,781	7,231	13,567	20,646	65.7
Rhode Island	1,199	1,668	501	888	1,700	2,556	66.5
South Carolina	2,048	3,701	631	2,244	2,679	5,945	45.1
South Dakota	464	932	149	508	613	1,440	42.6
Tennessee	3,388	5,005	1,391	2,821	4,779	7,826	61.1
Texas	8,749	14,739	3,092	8,811	11,841	23,550	50.3
Utah	1,766	2,676	470	1,092	2,236	3,768	59.3
Vermont	658	946	233	549	891	1,495	59.6
Virginia	3,893	6,504	1,217	3,631	5,110	10,135	50.4
Washington	3,591	4,880	1,612	2,852	5,203	7,732	67.3
West Virginia	1,122	1,624	456	967	1,578	2,591	60.9
Wisconsin	3,744	6,227	1,417	3,646	5,161	9,873	52.3
Wyoming	435	646	146	370	581	1,016	57.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 5.—Average salaries of full-time instructional faculty, on 9- and 10-month contracts, in Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	$52,335	$68,731	$50,828	$41,830	$32,449	$35,484	$45,268
Alabama	42,623	57,650	44,630	37,475	29,136	28,230	37,810
Alaska	50,323	63,573	51,876	42,181	36,725	36,185	37,649
Arizona	54,270	72,098	52,924	43,755	28,458	36,534	50,305
Arkansas	40,769	55,144	44,301	37,516	29,013	21,931	33,298
California	61,445	74,949	56,322	46,453	41,307	46,096	55,956
Colorado	51,259	65,424	50,068	41,597	32,636	31,589	37,931
Connecticut	62,828	80,729	56,862	45,959	36,969	45,297	27,468
Delaware	59,204	82,313	59,320	46,829	37,060	35,401	44,156
District of Columbia	60,982	81,562	55,283	45,327	36,936	32,495	35,139
Florida	48,972	61,430	48,155	41,091	33,990	33,282	41,945
Georgia	49,710	67,309	50,678	41,319	31,682	34,137	35,253
Hawaii	53,447	67,444	53,368	45,632	36,846	—	—
Idaho	44,230	53,609	44,231	38,748	30,936	29,790	42,734
Illinois	54,478	73,613	52,048	43,579	30,038	30,860	50,476
Indiana	50,061	67,495	49,539	41,216	28,686	33,139	31,846
Iowa	48,638	64,986	48,490	39,376	32,032	37,054	37,502
Kansas	43,207	58,627	44,481	37,443	30,402	29,801	36,303
Kentucky	44,994	58,158	43,634	37,550	28,821	28,239	29,716
Louisiana	45,204	61,816	46,852	38,839	28,740	23,423	32,049
Maine	45,794	60,592	47,062	37,872	31,854	36,750	36,155
Maryland	52,748	67,998	50,505	42,196	36,176	32,308	45,485
Massachusetts	61,423	75,341	55,929	46,607	34,528	46,191	36,783
Michigan	55,658	69,270	53,317	44,032	35,062	33,801	55,011
Minnesota	49,488	65,029	48,710	39,582	31,990	29,704	44,339
Mississippi	41,264	56,033	45,617	38,188	29,078	22,998	38,263
Missouri	48,490	63,922	49,301	40,040	32,701	30,281	35,260
Montana	42,084	53,773	43,688	37,089	31,752	22,010	31,135
Nebraska	45,754	62,502	47,669	38,376	31,188	27,254	35,089
Nevada	53,588	64,307	56,625	45,461	38,754	36,966	47,458
New Hampshire	52,273	63,641	48,876	40,249	30,990	39,517	29,259
New Jersey	62,568	82,220	60,766	46,822	35,005	39,274	46,036
New Mexico	42,969	56,854	44,642	37,125	30,572	31,040	31,800
New York	58,156	74,413	55,107	44,575	34,360	40,124	39,329
North Carolina	48,984	67,523	49,556	41,068	31,381	34,833	34,603
North Dakota	38,427	50,175	40,428	36,331	30,131	26,967	27,076
Ohio	51,895	67,346	50,268	41,029	32,372	29,856	41,869
Oklahoma	43,955	57,346	45,949	39,396	31,419	26,228	35,098
Oregon	46,591	59,609	46,014	38,934	32,033	26,094	44,418
Pennsylvania	56,451	74,225	54,812	44,269	34,260	33,878	28,738
Rhode Island	56,456	68,472	51,666	42,690	31,920	38,667	—
South Carolina	43,517	60,567	46,151	37,911	28,936	33,495	33,108
South Dakota	37,023	47,706	39,520	33,851	27,944	(*)	31,676
Tennessee	46,137	61,394	44,420	36,674	29,033	30,376	30,779
Texas	48,210	65,006	48,336	40,528	32,131	32,725	42,569
Utah	47,627	60,681	46,240	39,290	32,992	30,069	39,988
Vermont	46,908	61,214	45,676	37,881	30,192	36,010	33,777
Virginia	50,471	65,032	49,255	40,569	31,971	35,628	32,883
Washington	47,637	64,052	48,492	41,790	37,829	37,286	40,252
West Virginia	42,345	52,205	42,301	35,106	28,597	29,258	(*)
Wisconsin	50,831	62,225	47,648	40,789	32,627	33,658	50,814
Wyoming	40,186	55,170	44,095	38,014	26,891	29,961	34,333

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 6.—Average salaries of full-time instructional faculty, on 9- and 10-month contracts, in public Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	$51,638	$66,937	$50,948	$42,147	$32,627	$34,608	$45,812
Alabama	43,321	59,335	45,496	38,813	29,819	28,767	37,996
Alaska	51,080	64,631	52,542	42,702	37,250	36,185	37,649
Arizona	54,622	72,905	53,072	44,254	28,949	36,650	50,339
Arkansas	41,319	57,980	45,869	38,673	29,594	21,344	33,493
California	61,086	73,236	56,708	46,874	43,181	46,308	56,156
Colorado	50,854	64,925	49,661	41,485	32,677	29,044	38,111
Connecticut	61,529	76,283	58,825	45,515	36,740	50,768	—
Delaware	59,493	83,429	59,235	47,378	36,450	39,967	44,156
District of Columbia	48,708	61,906	48,403	39,452	(*)	(*)	—
Florida	49,007	60,282	48,757	41,958	34,254	35,247	42,166
Georgia	50,240	68,373	51,810	42,176	32,027	35,826	35,828
Hawaii	53,820	68,418	53,536	46,021	36,737	—	—
Idaho	44,099	53,851	44,403	38,835	30,954	—	36,787
Illinois	52,751	69,261	51,265	43,023	26,554	28,952	51,349
Indiana	49,714	68,689	50,174	41,990	27,569	33,491	31,850
Iowa	52,612	72,210	53,174	44,362	34,517	—	37,747
Kansas	44,929	61,761	46,785	39,709	30,515	29,801	36,714
Kentucky	46,724	60,872	44,730	38,970	29,926	28,507	46,152
Louisiana	43,710	59,992	45,883	38,482	28,655	17,398	32,094
Maine	44,739	57,109	46,602	37,893	31,681	36,712	36,246
Maryland	51,990	65,536	50,755	42,271	34,135	31,925	36,842
Massachusetts	53,760	59,788	53,114	42,801	32,698	41,792	36,329
Michigan	57,810	72,205	55,279	46,038	36,574	33,231	55,866
Minnesota	50,790	66,972	50,658	41,582	30,669	—	44,529
Mississippi	41,785	57,692	47,448	39,240	29,730	23,083	38,308
Missouri	48,769	63,249	50,597	40,943	33,416	26,441	35,873
Montana	43,432	55,138	45,264	38,126	32,180	28,780	31,582
Nebraska	47,032	64,832	49,854	40,251	31,319	27,254	35,032
Nevada	53,691	64,361	56,946	45,607	38,754	36,966	47,458
New Hampshire	50,446	57,752	48,941	39,735	31,495	(*)	32,403
New Jersey	62,227	80,681	62,261	47,553	35,381	38,262	57,208
New Mexico	43,438	57,513	44,897	37,446	30,704	31,050	31,546
New York	55,838	69,086	53,541	43,510	34,890	40,878	(*)
North Carolina	50,569	71,194	52,323	44,186	39,093	34,218	34,540
North Dakota	39,041	50,841	40,835	36,835	30,220	26,967	28,509
Ohio	53,476	70,005	51,885	42,350	32,880	30,187	43,201
Oklahoma	44,258	57,470	46,651	40,274	32,390	24,879	35,103
Oregon	46,068	58,581	45,953	39,929	31,702	24,619	44,439
Pennsylvania	57,079	73,608	56,626	45,398	34,804	33,003	39,541
Rhode Island	53,656	61,958	49,161	39,428	26,704	—	—
South Carolina	44,552	63,379	48,506	39,877	29,448	33,866	33,154
South Dakota	37,525	48,515	40,074	34,740	27,881	—	31,732
Tennessee	45,912	59,687	44,452	36,751	29,180	32,646	—
Texas	47,310	63,849	47,915	40,711	32,634	32,506	42,622
Utah	45,497	58,276	44,682	37,910	32,720	30,102	38,165
Vermont	47,448	59,536	46,499	36,556	(*)	34,189	40,620
Virginia	51,537	66,406	50,110	41,577	32,514	36,336	(*)
Washington	47,531	65,090	49,183	42,924	38,614	37,677	40,583
West Virginia	43,302	53,099	42,941	35,665	28,289	29,258	(*)
Wisconsin	52,301	63,609	48,579	42,810	38,589	34,537	50,953
Wyoming	40,186	55,170	44,095	38,014	26,891	29,961	34,333

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 7.—Average salaries of full-time instructional faculty, on 9- and 10-month contracts, in private, non-profit Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	$54,169	$72,627	$50,601	$41,266	$32,121	$38,376	$39,002
Alabama	38,827	51,371	39,567	33,378	26,284	25,075	26,259
Alaska	38,960	45,045	40,831	35,106	34,712	—	—
Arizona	46,480	58,324	50,577	37,603	26,231	(*)	30,051
Arkansas	37,902	46,284	38,853	32,463	24,217	24,572	15,438
California	63,208	81,258	55,532	45,617	40,047	44,514	47,118
Colorado	54,239	68,978	52,721	42,267	31,999	36,154	31,025
Connecticut	64,667	85,709	54,474	46,369	37,598	42,943	(*)
Delaware	56,224	70,267	59,855	36,272	42,895	32,495	—
District of Columbia	61,414	81,855	55,403	45,480	36,978	32,442	(*)
Florida	48,975	65,954	46,417	38,845	32,299	32,243	41,270
Georgia	48,331	64,905	47,389	38,564	30,266	32,103	38,228
Hawaii	49,215	55,689	51,716	42,401	41,367	—	—
Idaho	44,649	49,240	40,771	35,783	(*)	29,790	45,250
Illinois	57,638	78,863	52,922	44,135	34,423	39,284	41,932
Indiana	50,813	65,413	48,345	39,836	31,817	30,275	33,800
Iowa	42,146	53,797	41,696	34,885	28,179	37,054	31,788
Kansas	32,650	38,154	33,913	30,152	29,965	—	25,945
Kentucky	38,698	48,240	38,893	33,305	25,617	24,010	20,584
Louisiana	52,441	68,903	50,090	40,647	30,506	36,020	(*)
Maine	48,722	67,828	48,312	37,843	32,144	(*)	39,781
Maryland	55,407	77,288	49,327	41,902	43,765	34,389	45,752
Massachusetts	65,812	87,342	57,187	48,165	36,105	47,827	36,952
Michigan	44,341	53,514	44,733	37,659	31,479	47,052	34,189
Minnesota	46,296	60,554	46,178	37,495	33,028	29,704	32,126
Mississippi	37,110	48,509	37,617	33,320	26,300	22,514	22,244
Missouri	47,956	65,230	46,723	38,653	30,893	33,519	31,256
Montana	34,423	42,615	36,640	31,494	27,168	15,241	29,201
Nebraska	41,807	54,801	42,432	34,894	30,949	—	43,499
Nevada	41,051	(*)	42,161	32,547	—	—	—
New Hampshire	55,365	73,238	49,661	41,232	30,160	43,420	24,230
New Jersey	63,562	85,538	56,124	44,690	33,701	40,385	41,548
New Mexico	35,906	44,454	38,218	32,373	26,069	(*)	33,012
New York	60,889	80,217	56,619	45,724	34,175	39,102	42,647
North Carolina	45,390	60,468	43,796	36,424	28,983	40,048	35,883
North Dakota	33,808	42,668	36,994	33,072	29,086	—	25,258
Ohio	48,428	61,805	46,462	38,310	31,749	27,807	28,850
Oklahoma	42,738	56,901	43,634	35,678	27,848	34,544	35,062
Oregon	48,442	61,550	46,150	37,380	33,296	31,995	39,361
Pennsylvania	55,805	74,964	52,652	43,065	33,160	35,540	22,340
Rhode Island	58,551	74,907	53,280	45,040	32,176	38,667	—
South Carolina	39,120	50,728	38,148	33,489	27,327	30,570	31,405
South Dakota	35,169	43,837	37,669	31,317	28,275	20,962	(*)
Tennessee	46,643	65,452	44,334	36,530	28,644	29,932	30,779
Texas	52,178	68,506	49,732	39,908	29,503	34,169	28,935
Utah	52,976	65,956	49,881	43,011	34,911	(*)	43,119
Vermont	46,437	62,804	44,760	38,918	30,253	46,269	31,892
Virginia	47,221	60,503	46,189	37,499	29,087	32,994	20,510
Washington	48,061	61,055	47,304	39,803	35,345	31,004	21,825
West Virginia	37,106	44,948	38,547	33,034	29,821	—	—
Wisconsin	44,906	56,164	45,489	37,720	30,328	29,011	39,391
Wyoming	—	—	—	—	—	—	—

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 8.—Average salaries of full-time instructional faculty, on 9- and 10-month contracts, in 4-year Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	$54,211	$70,441	$51,351	$42,105	$31,787	$35,431	$38,644
Alabama	44,137	57,650	44,630	37,475	29,136	28,230	(*)
Alaska	50,221	63,537	51,842	42,181	36,725	36,185	37,649
Arizona	56,042	72,098	52,924	43,755	28,458	36,534	33,572
Arkansas	43,111	55,261	44,462	37,892	29,076	21,931	—
California	64,501	76,560	56,114	46,186	37,474	45,908	48,366
Colorado	53,738	67,159	50,740	42,228	32,902	31,589	35,112
Connecticut	64,816	83,193	57,566	46,346	37,544	45,497	(*)
Delaware	61,854	82,313	59,320	46,829	37,060	35,401	—
District of Columbia	60,982	81,562	55,283	45,327	36,936	32,495	35,139
Florida	52,209	67,457	49,128	41,917	33,331	33,282	41,048
Georgia	51,265	68,428	51,438	42,110	31,649	34,137	33,808
Hawaii	57,612	71,201	55,224	46,908	35,662	—	—
Idaho	44,714	54,030	44,399	38,931	30,694	29,790	37,810
Illinois	55,509	73,641	52,065	43,621	30,164	30,860	40,613
Indiana	51,702	68,447	49,843	41,348	28,562	33,139	33,800
Iowa	51,455	66,818	49,175	39,708	31,724	37,054	32,935
Kansas	45,939	59,021	44,628	37,551	30,516	29,801	37,022
Kentucky	46,626	59,763	46,097	38,133	28,593	28,239	29,716
Louisiana	46,293	62,364	47,538	39,314	28,763	23,423	(*)
Maine	47,564	60,592	47,062	37,872	31,854	36,750	44,089
Maryland	54,914	73,422	52,335	43,820	38,487	32,349	46,016
Massachusetts	64,020	81,506	56,842	47,344	35,006	46,191	36,662
Michigan	55,701	70,161	53,337	43,837	34,489	33,801	35,825
Minnesota	51,654	65,029	48,710	39,582	31,990	29,704	26,528
Mississippi	43,390	56,248	45,674	38,322	29,371	22,998	25,073
Missouri	49,848	65,108	49,383	40,115	32,419	30,561	31,599
Montana	43,742	53,773	43,688	37,089	31,752	22,010	30,822
Nebraska	47,613	62,502	47,687	38,376	31,273	27,254	37,727
Nevada	57,333	75,320	56,625	45,461	26,712	36,966	(*)
New Hampshire	54,429	69,416	50,143	40,756	31,737	39,517	32,403
New Jersey	64,260	84,287	60,850	46,680	33,065	39,674	50,500
New Mexico	46,314	60,133	45,672	37,937	29,078	31,916	32,987
New York	59,651	76,801	55,855	45,138	34,558	39,802	39,971
North Carolina	50,983	67,680	49,674	41,106	31,593	34,833	38,890
North Dakota	39,899	50,276	41,724	36,603	30,887	27,067	—
Ohio	53,530	68,758	50,846	41,317	31,910	31,283	30,616
Oklahoma	45,843	59,729	46,299	38,969	30,700	26,228	34,991
Oregon	47,956	59,922	46,050	38,952	31,875	26,094	35,714
Pennsylvania	57,246	76,479	55,396	44,443	34,262	33,919	18,582
Rhode Island	57,993	71,196	52,671	44,072	32,176	38,667	—
South Carolina	47,102	60,918	46,316	37,999	28,982	33,495	29,262
South Dakota	37,744	48,121	39,520	33,851	27,944	20,962	27,854
Tennessee	48,287	62,296	46,320	37,562	29,139	30,376	30,779
Texas	50,894	67,820	49,241	41,044	31,606	32,754	37,072
Utah	49,384	61,749	46,978	40,061	33,241	29,683	42,178
Vermont	47,642	61,214	45,781	38,384	34,792	36,010	35,306
Virginia	52,700	67,637	51,086	41,502	31,779	35,628	33,058
Washington	51,447	64,052	48,492	41,827	33,151	37,286	38,424
West Virginia	42,758	52,741	42,637	35,388	28,676	30,685	—
Wisconsin	51,111	62,613	48,111	40,908	32,630	33,658	39,391
Wyoming	46,941	58,437	46,033	41,055	43,305	29,961	—

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 9.—Average salaries of full-time instructional faculty, on 9- and 10-month contracts, in 4-year public Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	$54,114	$69,195	$51,732	$42,582	$31,519	$34,516	$38,614
Alabama	45,377	59,335	45,496	38,813	29,819	28,767	(*)
Alaska	50,979	64,618	52,513	42,702	37,250	36,185	37,649
Arizona	56,693	72,905	53,072	44,254	28,949	36,650	34,052
Arkansas	44,311	58,112	46,008	39,108	29,722	21,344	—
California	64,982	75,046	56,407	46,475	35,212	46,308	49,282
Colorado	53,655	66,882	50,417	42,221	32,968	29,044	36,833
Connecticut	64,812	80,445	60,585	46,033	37,551	51,802	—
Delaware	62,507	83,429	59,235	47,378	36,450	39,967	—
District of Columbia	48,708	61,906	48,403	39,452	(*)	(*)	—
Florida	53,761	68,080	50,337	43,526	33,746	35,247	—
Georgia	52,247	69,863	52,891	43,315	31,919	35,826	—
Hawaii	58,800	72,951	55,722	47,890	35,269	—	—
Idaho	45,186	54,309	44,586	39,030	30,712	—	35,353
Illinois	53,317	69,261	51,265	43,023	26,554	28,952	29,260
Indiana	52,079	70,340	50,579	42,119	27,309	33,491	—
Iowa	59,685	76,372	54,857	45,656	35,709	—	—
Kansas	48,862	62,292	47,000	39,891	30,666	29,801	41,071
Kentucky	49,378	63,464	48,465	40,002	30,468	28,507	46,152
Louisiana	44,864	60,606	46,680	39,023	28,664	17,398	—
Maine	46,803	57,109	46,602	37,893	31,681	36,712	—
Maryland	54,641	71,735	53,295	44,491	35,869	31,966	(*)
Massachusetts	58,931	69,125	55,783	44,373	31,475	41,792	—
Michigan	58,474	73,481	55,400	45,856	35,947	33,231	36,235
Minnesota	55,260	66,972	50,658	41,582	30,669	—	—
Mississippi	44,522	57,692	47,448	39,240	29,730	23,083	—
Missouri	50,960	64,907	50,791	41,097	33,195	26,790	32,737
Montana	45,397	55,138	45,264	38,126	32,180	28,780	—
Nebraska	49,951	64,832	49,883	40,251	31,452	27,254	(*)
Nevada	57,537	75,496	56,946	45,607	26,712	36,966	(*)
New Hampshire	54,045	66,290	51,232	40,835	33,014	(*)	32,403
New Jersey	64,640	83,521	62,995	47,646	32,560	38,921	60,943
New Mexico	47,260	61,117	46,010	38,385	29,309	31,947	32,917
New York	57,666	71,603	54,453	43,969	34,594	40,325	—
North Carolina	53,669	71,194	52,323	44,186	39,093	34,218	39,369
North Dakota	40,545	50,958	42,507	37,241	31,187	27,067	—
Ohio	56,314	72,590	53,049	43,154	32,040	32,567	33,700
Oklahoma	46,754	60,608	46,890	39,864	31,615	24,879	—
Oregon	47,695	59,020	46,001	40,014	31,418	24,619	31,459
Pennsylvania	58,310	77,733	57,773	45,739	34,811	32,980	34,772
Rhode Island	57,006	66,085	51,544	42,170	—	—	—
South Carolina	49,795	63,939	48,800	40,060	29,523	33,866	(*)
South Dakota	38,542	49,038	40,074	34,740	27,881	—	25,832
Tennessee	49,133	60,737	47,404	38,209	29,312	32,646	—
Texas	50,381	67,537	49,046	41,406	32,293	32,537	38,318
Utah	47,528	59,648	45,542	38,700	32,858	29,718	34,707
Vermont	47,448	59,536	46,499	36,556	(*)	34,189	40,620
Virginia	54,927	70,239	52,921	43,233	32,510	36,336	—
Washington	52,971	65,090	49,183	43,046	31,620	37,677	43,237
West Virginia	43,865	53,773	43,375	36,065	28,353	30,685	—
Wisconsin	53,713	64,144	49,372	43,125	38,830	34,537	—
Wyoming	46,941	58,437	46,033	41,055	43,305	29,961	—

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 10.—Average salaries of full-time instructional faculty, on 9- and 10-month contracts, in 2-year Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	$45,652	$54,323	$45,811	$39,306	$34,238	$36,608	$45,801
Alabama	37,778	—	—	—	—	—	37,778
Alaska	61,909	65,188	(*)	—	—	—	—
Arizona	50,539	—	—	—	—	—	50,539
Arkansas	33,038	39,757	33,190	31,727	28,279	—	33,298
California	56,286	61,723	57,699	49,433	44,626	55,555	56,138
Colorado	37,875	41,626	37,487	31,031	30,201	—	38,195
Connecticut	49,574	61,490	50,114	43,410	36,535	(*)	26,672
Delaware	44,156	—	—	—	—	—	44,156
District of Columbia	—	—	—	—	—	—	—
Florida	42,467	47,947	43,264	37,561	34,579	—	42,000
Georgia	38,757	48,118	43,574	36,819	31,787	—	35,524
Hawaii	45,628	55,900	47,946	43,709	37,517	—	—
Idaho	42,972	44,596	39,887	36,093	32,111	—	43,795
Illinois	51,247	38,692	35,008	29,974	25,408	—	51,440
Indiana	35,757	49,839	41,347	36,315	30,762	—	31,831
Iowa	37,406	41,738	36,642	33,348	32,960	—	37,653
Kansas	36,176	39,654	32,691	29,491	27,352	—	36,269
Kentucky	36,621	45,959	35,849	32,416	29,269	—	—
Louisiana	34,621	46,297	39,481	33,394	28,606	—	32,094
Maine	35,632	—	—	—	—	—	35,632
Maryland	46,857	55,945	45,728	37,684	32,084	29,768	34,766
Massachusetts	41,778	44,921	37,746	35,552	33,387	—	36,969
Michigan	55,480	54,190	52,801	50,834	40,831	—	56,143
Minnesota	44,422	—	—	—	—	—	44,422
Mississippi	38,058	33,605	(*)	23,410	21,789	—	38,285
Missouri	41,349	54,093	48,410	38,886	33,920	21,786	35,827
Montana	31,175	—	—	—	—	—	31,175
Nebraska	35,029	—	(*)	—	(*)	—	35,065
Nevada	46,323	51,173	—	—	39,027	—	47,583
New Hampshire	35,381	38,036	32,199	28,737	26,935	—	24,230
New Jersey	56,329	71,820	60,466	47,330	36,985	34,190	28,627
New Mexico	33,094	37,556	36,939	32,571	31,557	29,928	31,437
New York	51,597	64,272	50,544	42,175	34,147	41,606	31,193
North Carolina	32,136	35,608	30,126	27,824	27,725	—	32,217
North Dakota	32,734	(*)	36,632	34,408	29,202	(*)	27,076
Ohio	43,580	55,265	46,056	39,618	33,018	28,332	43,444
Oklahoma	36,836	38,727	31,455	41,753	34,483	—	35,112
Oregon	44,265	48,677	45,212	38,408	32,926	—	44,486
Pennsylvania	48,467	56,389	48,088	41,664	34,239	33,229	34,567
Rhode Island	43,329	50,511	36,683	32,814	26,704	—	—
South Carolina	33,655	48,316	39,693	33,211	26,882	—	33,158
South Dakota	32,474	27,318	—	—	—	—	32,636
Tennessee	35,861	46,052	38,884	31,997	28,847	—	—
Texas	41,549	46,483	41,147	37,082	32,863	29,936	42,591
Utah	37,431	43,865	39,161	34,688	32,495	31,688	38,669
Vermont	20,206	—	30,669	24,636	19,367	—	11,420
Virginia	40,546	47,389	42,047	36,910	32,386	—	(*)
Washington	40,565	—	—	40,703	44,397	—	40,408
West Virginia	35,588	44,084	35,345	29,463	27,761	24,342	(*)
Wisconsin	50,263	50,318	41,677	37,168	(*)	—	50,953
Wyoming	33,458	38,834	36,909	31,877	25,008	—	34,333

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 11.—Average salaries of full-time instructional faculty, on 9- and 10-month contracts, in 2-year public Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	$45,919	$54,488	$46,078	$39,623	$34,713	$36,199	$45,993
Alabama	37,964	—	—	—	—	—	37,964
Alaska	61,909	65,188	(*)	—	—	—	—
Arizona	50,539	—	—	—	—	—	50,539
Arkansas	33,305	42,169	35,572	32,808	28,279	—	33,493
California	56,462	61,818	57,973	49,804	47,278	—	56,174
Colorado	37,875	41,626	37,487	31,031	30,201	—	38,195
Connecticut	50,780	61,582	50,135	43,871	36,486	(*)	—
Delaware	44,156	—	—	—	—	—	44,156
District of Columbia	—	—	—	—	—	—	—
Florida	42,521	47,947	43,264	37,561	34,579	—	42,166
Georgia	39,390	49,495	44,180	37,238	32,308	—	35,828
Hawaii	45,628	55,900	47,946	43,709	37,517	—	—
Idaho	37,556	44,596	39,887	36,093	32,111	—	37,168
Illinois	51,793	—	—	—	—	—	51,793
Indiana	35,913	49,839	42,194	38,005	31,568	—	31,850
Iowa	37,460	41,738	36,642	32,942	32,612	—	37,747
Kansas	36,453	39,654	32,691	29,491	27,352	—	36,562
Kentucky	36,621	45,959	35,849	32,416	29,269	—	—
Louisiana	34,621	46,297	39,481	33,394	28,606	—	32,094
Maine	36,246	—	—	—	—	—	36,246
Maryland	46,934	55,945	45,728	37,751	32,084	29,768	38,191
Massachusetts	42,039	44,926	37,693	35,967	33,437	—	36,329
Michigan	55,608	54,190	52,801	50,834	40,831	—	56,303
Minnesota	44,529	—	—	—	—	—	44,529
Mississippi	38,308	—	—	—	—	—	38,308
Missouri	41,499	54,348	49,132	39,413	34,046	21,786	35,931
Montana	31,582	—	—	—	—	—	31,582
Nebraska	35,029	—	(*)	—	(*)	—	35,065
Nevada	46,323	51,173	—	—	39,027	—	47,583
New Hampshire	35,625	38,036	32,199	28,737	26,935	—	—
New Jersey	56,444	71,820	60,466	47,330	36,985	34,190	34,798
New Mexico	33,094	37,556	36,939	32,571	31,557	29,928	31,437
NewYork	52,540	64,628	51,223	42,741	34,981	42,443	27,000
North Carolina	32,128	—	—	—	—	—	32,128
North Dakota	33,459	(*)	36,632	34,408	29,202	(*)	28,509
Ohio	43,966	55,546	46,173	39,862	33,607	28,332	43,872
Oklahoma	37,045	38,801	34,711	42,075	34,960	—	35,112
Oregon	44,265	48,677	45,212	38,408	32,926	—	44,486
Pennsylvania	50,184	57,048	49,358	42,713	34,750	33,229	40,872
Rhode Island	43,329	50,511	36,683	32,814	26,704	—	—
South Carolina	33,653	48,316	39,693	33,211	26,882	—	33,148
South Dakota	32,530	27,318	—	—	—	—	32,695
Tennessee	36,041	46,839	38,936	32,148	29,041	—	—
Texas	41,623	46,497	41,219	37,220	32,990	29,936	42,631
Utah	37,374	43,865	39,161	34,688	32,495	31,688	38,582
Vermont	—	—	—	—	—	—	—
Virginia	40,629	47,389	42,059	37,012	32,521	—	26,950
Washington	40,565	—	—	40,703	44,397	—	40,408
West Virginia	35,588	44,084	35,345	29,463	27,761	24,342	35,697
Wisconsin	50,263	50,318	41,677	37,168	(*)	—	50,953
Wyoming	33,458	38,834	36,909	31,877	25,008	—	34,333

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 12.—Average salaries of male full-time instructional faculty, on 9- and 10-month contracts, in Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	$56,115	$70,468	$52,041	$43,017	$33,070	$37,481	$46,822
Alabama	45,803	59,171	46,199	38,650	29,291	29,567	38,562
Alaska	52,728	63,797	52,546	44,324	39,203	36,829	39,352
Arizona	57,989	73,182	54,354	45,387	29,507	37,695	50,954
Arkansas	44,216	56,156	44,994	38,622	29,099	22,978	34,008
California	64,683	76,806	57,452	47,931	41,278	48,139	57,167
Colorado	55,116	67,098	51,323	42,801	34,351	34,369	38,822
Connecticut	67,408	83,245	58,123	47,054	38,450	48,112	34,469
Delaware	64,796	84,698	60,384	49,078	40,226	37,260	43,881
District of Columbia	65,623	83,406	55,927	46,723	38,489	32,291	35,243
Florida	52,133	64,321	49,112	41,751	34,493	34,857	43,217
Georgia	53,792	69,322	52,055	42,509	31,249	36,565	37,550
Hawaii	56,735	69,419	54,093	46,626	37,057	—	—
Idaho	46,065	54,215	44,774	40,123	31,932	32,556	44,296
Illinois	58,652	75,335	53,409	45,275	30,207	31,662	52,856
Indiana	54,576	69,303	50,986	42,801	28,982	35,777	32,362
Iowa	52,434	66,842	50,166	40,009	32,183	42,550	38,415
Kansas	46,097	59,383	45,791	38,514	30,542	30,431	37,295
Kentucky	48,263	59,645	44,885	38,400	28,918	28,586	37,960
Louisiana	49,369	63,343	47,843	39,739	28,512	27,949	30,878
Maine	48,343	61,903	47,704	38,303	31,149	44,122	37,003
Maryland	56,719	70,385	51,626	43,576	35,450	34,061	47,751
Massachusetts	66,946	79,742	57,777	48,990	36,619	50,508	38,119
Michigan	59,149	70,755	54,836	45,294	36,108	35,165	56,892
Minnesota	52,292	66,603	49,863	40,607	32,149	31,186	44,614
Mississippi	44,466	57,495	46,740	39,637	29,428	20,848	38,695
Missouri	52,073	65,152	50,509	41,610	32,668	31,679	36,740
Montana	44,196	54,525	44,498	37,299	32,504	19,351	30,767
Nebraska	49,385	63,640	48,933	39,009	30,515	28,795	36,506
Nevada	56,574	67,132	57,709	45,974	39,121	37,583	48,530
New Hampshire	56,627	67,259	50,570	42,327	29,874	(*)	27,105
New Jersey	67,356	84,619	62,461	48,492	35,208	40,729	48,652
New Mexico	46,018	59,237	45,910	38,017	30,498	31,889	32,650
New York	61,959	75,848	56,521	45,736	34,362	41,306	38,636
North Carolina	53,527	69,038	50,936	42,182	32,184	36,945	36,588
North Dakota	40,500	50,673	41,395	37,239	31,138	29,648	28,300
Ohio	55,781	69,158	51,833	41,821	32,485	30,197	44,427
Oklahoma	46,779	59,644	46,789	39,868	32,242	30,328	35,837
Oregon	49,264	60,614	46,868	40,131	33,026	26,572	46,010
Pennsylvania	60,639	76,237	56,189	45,599	36,033	35,518	30,247
Rhode Island	60,621	70,999	54,222	44,253	32,236	36,110	—
South Carolina	47,258	61,983	47,126	38,550	29,840	36,343	33,764
South Dakota	39,180	48,192	40,296	35,415	28,079	(*)	32,619
Tennessee	49,928	62,602	46,082	37,268	29,034	31,609	30,624
Texas	52,098	67,180	49,311	41,560	32,730	34,550	43,789
Utah	50,578	61,938	47,686	40,914	34,078	31,691	40,796
Vermont	50,561	62,393	46,698	38,611	31,548	38,147	35,391
Virginia	54,240	67,046	50,444	41,689	32,601	38,784	34,246
Washington	50,453	64,970	49,233	42,676	39,093	38,064	40,923
West Virginia	45,223	53,385	43,770	36,026	28,102	31,348	—
Wisconsin	53,245	63,499	48,690	41,638	30,744	33,638	51,467
Wyoming	43,297	56,382	44,585	38,947	27,209	30,884	36,103

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

Table 13.—Average salaries of female full-time instructional faculty, on 9- and 10-month contracts, in Title IV eligible degree-granting institutions, by academic rank and state: Academic year 1997–98

State	All ranks	Professor	Associate professor	Assistant professor	Instructor	Lecturer	No academic rank
50 States and D.C.	$45,775	$61,965	$48,597	$40,504	$32,011	$33,918	$43,491
Alabama	37,556	50,513	40,818	36,085	29,038	27,116	37,077
Alaska	46,412	62,853	50,821	39,632	34,712	35,448	35,379
Arizona	48,149	65,732	50,326	42,127	27,759	35,457	49,608
Arkansas	35,542	48,964	42,696	36,137	28,967	21,476	32,716
California	55,731	68,923	54,646	44,764	41,335	43,839	54,389
Colorado	43,718	57,096	47,785	40,277	30,944	28,500	37,032
Connecticut	54,172	72,120	54,676	44,748	35,682	41,621	26,513
Delaware	50,717	73,735	57,141	44,024	36,186	34,218	44,316
District of Columbia	52,994	74,858	54,266	44,028	35,800	32,680	34,891
Florida	43,502	52,602	46,210	40,309	33,541	31,479	40,651
Georgia	43,600	59,729	48,266	40,126	31,912	32,837	33,256
Hawaii	47,991	60,879	52,122	44,477	36,674	—	—
Idaho	39,680	50,407	43,011	36,652	29,958	21,495	38,479
Illinois	47,038	65,195	49,275	41,506	29,924	30,128	47,698
Indiana	41,714	58,436	46,420	39,350	28,499	31,733	31,461
Iowa	41,969	56,391	45,514	38,654	31,918	33,390	36,545
Kansas	38,039	53,977	41,797	36,079	30,309	29,193	35,139
Kentucky	39,955	52,722	41,775	36,715	28,765	28,004	18,723
Louisiana	38,929	54,975	45,015	37,892	28,867	22,453	33,003
Maine	41,405	54,362	45,975	37,470	32,621	31,981	34,780
Maryland	46,474	60,826	48,715	40,884	36,598	30,924	40,711
Massachusetts	51,583	62,643	52,821	44,094	33,373	41,933	35,555
Michigan	48,863	62,678	50,283	42,546	34,256	32,952	52,240
Minnesota	44,716	58,907	46,906	38,500	31,890	29,111	43,930
Mississippi	37,728	50,124	43,044	36,392	28,903	24,676	38,006
Missouri	42,100	58,493	46,824	38,288	32,721	29,332	33,488
Montana	37,800	49,403	41,821	36,848	31,099	24,670	31,706
Nebraska	39,106	55,240	44,836	37,700	31,568	26,335	33,204
Nevada	47,933	56,490	53,590	44,852	38,252	36,459	46,184
New Hampshire	44,710	52,823	46,248	37,987	31,444	41,420	30,217
New Jersey	54,479	74,776	57,954	44,979	34,866	38,175	37,970
New Mexico	38,069	49,050	42,177	36,205	30,641	30,110	30,845
New York	51,444	69,558	52,726	43,344	34,358	39,198	40,109
North Carolina	41,671	60,680	46,903	39,727	30,885	33,403	33,248
North Dakota	34,566	47,452	38,066	35,048	28,769	24,909	26,176
Ohio	44,859	59,591	47,402	40,167	32,299	29,724	39,573
Oklahoma	39,010	48,531	44,102	38,779	30,747	22,662	34,184
Oregon	42,547	55,323	44,637	37,506	31,237	25,638	42,788
Pennsylvania	48,683	66,420	52,156	42,750	32,960	32,749	25,980
Rhode Island	48,632	59,798	48,054	41,009	31,355	40,316	—
South Carolina	37,348	53,154	43,824	37,164	28,371	31,063	32,522
South Dakota	33,065	44,714	37,833	31,894	27,854	(*)	29,936
Tennessee	39,411	55,067	41,825	36,023	29,032	29,422	30,921
Texas	41,706	55,380	46,292	39,359	31,687	31,330	41,232
Utah	40,395	52,510	43,136	36,644	31,857	27,856	38,625
Vermont	40,612	55,559	43,856	37,227	29,339	34,896	31,723
Virginia	43,719	56,670	47,002	39,445	31,536	33,683	28,285
Washington	42,820	59,288	47,032	40,793	36,914	36,689	39,423
West Virginia	37,514	47,694	39,759	34,149	28,857	27,864	(*)
Wisconsin	46,709	56,355	45,705	39,888	33,470	33,675	50,054
Wyoming	34,754	47,226	42,800	36,600	26,591	29,479	32,222

—Not applicable.

*Number of faculty reported in this category was too small to yield reliable results.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey" (IPEDS-SA: 1997–98).

LIFELONG LEARNING

Literacy in the Labor Force: Results from the National Adult Literacy Survey
Andrew Sum 95

Literacy in the Labor Force: Results From the National Adult Literacy Survey

Andrew Sum

This article was originally published as the Executive Summary of the report of the same name. The sample survey data are from the NCES National Adult Literacy Survey (NALS).

Introduction

This is one in a series of reports that examines the results of the National Adult Literacy Survey (NALS), a cooperative effort of the National Center for Education Statistics (NCES) and the Division of Adult Education and Literacy of the U.S. Department of Education. This report focuses primarily on the literacy skills of the nation's civilian labor force, including the employed and unemployed.

Many past studies of adult literacy have tried to count the number of "illiterates" in this nation, thereby treating literacy as a condition that individuals either do or do not have. We believe that such efforts are inherently arbitrary and misleading. They are also damaging in that they fail to acknowledge both the complexity of the literacy problem and the range of solutions needed to address it.

NALS is based on a different concept of literacy and, therefore, takes a different approach to measuring it. The aim of this survey is to document the English literacy of adults in the United States based on their performance across a wide array of tasks that reflect the types of materials and demands they encounter in their daily lives.

To gather the information on adults' literacy skills, trained staff interviewed nearly 13,600 individuals age 16 and older during the first 8 months of 1992. These participants had been randomly selected to represent the adult population in the country as a whole. In addition, about another 1,000 adults were surveyed in each of 12 states that chose to participate in a special study designed to provide state-level results that are comparable to the national data. Finally, some 1,100 inmates from 80 federal and state prisons were interviewed to gather information on the proficiencies of the prison population. Prisoners are not a part of the nation's labor force, however, and their results were excluded from this report.[1]

Each survey participant was asked to spend approximately an hour responding to a series of diverse literacy tasks as well as questions about his or her demographic characteristics, educational background, labor force status, job characteristics, reading practices, and other areas related to literacy. Based on their responses to the survey tasks, adults received proficiency scores along three scales that reflect varying degrees of skill in prose, document, and quantitative literacy.[2] The scales are powerful tools that make it possible to explore the proportions of adults in different subpopulations of interest who demonstrated various levels of performance.

This report analyzes the literacy proficiencies of the nation's noninstitutionalized adult population. Data for the nation's civilian labor force are analyzed with respect to certain subpopulations, such as the employed and unemployed, as well as demographic and socioeconomic subgroups of employed civilians. The report also compares the literacy proficiencies of workers in major occupations and industries and analyzes the relationship between literacy proficiencies and weekly wages and annual earnings. Some of the major findings are highlighted here.

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[1] For information about the literacy skills of the prison population, see Haigler et al. (1994).

[2] *Prose literacy* is the knowledge and skills needed to understand and use information from texts such as editorials, news stories, and fiction; *document literacy* is the knowledge and skills required to locate and use information contained in materials such as job applications, payroll forms, maps, and tables; *quantitative literacy* is the knowledge and skills required to apply arithmetic operations, either alone or sequentially, using numbers embedded in printed material.

Highlights

Literacy proficiencies of those in and outside of the labor force

- Mean literacy proficiencies on all three scales—prose, document, and quantitative—were higher for adults participating in the labor force than for those outside of the labor force.
- Thirty-nine to 43 percent of the labor force scored at the two lowest levels of literacy proficiency, while only one out of four labor force participants scored at the two highest levels of proficiency, and only 3 to 5 percent scored at Level 5, the highest proficiency level.
- Younger adults (ages 16 to 65) who were not in the labor force had higher literacy proficiencies than older adults (over the age of 65), on average. One-third of those ages 16 to 65 who were neither working nor looking for work had proficiencies equal to or greater than the average for all labor force participants.

Literacy proficiencies of the employed and unemployed

- On the document and quantitative scales, full-time employees outperformed part-time employees (table A). Both groups had much higher average literacy proficiencies than the unemployed. In general, unemployment rates among labor force participants who scored in Level 1 were four to seven times higher than those of participants in Level 5.

Literacy proficiencies by demographic characteristics

- The mean scores of full-time employed men and women were similar on each of the three literacy scales, with women faring slightly better than men on the prose scale (by 7 points) and men performing slightly better than women on the quantitative scale (by 4 points).
- The oldest age groups of full-time employed civilians (ages 55 to 64 and age 65 and older) had the lowest proficiency scores, on average, while those ages 35 to 44 had the highest.
- On each literacy scale, mean proficiencies were higher for white full-time employees, followed by Asian, black, and Hispanic full-time employees.
- Foreign-born full-time workers who had lived in the United States for 10 years or less had significantly lower average literacy proficiency scores than native-born full-time workers.

Table A.—Distribution of adults across the literacy levels, by labor force status: 1992

Literacy scale/ labor force status	Percent in level …				
	1	2	3	4	5
Prose					
Employed full time	13	24	36	23	5
Employed part time	14	26	37	20	4
Employed, not at work	15	24	37	21	4
Unemployed	24	35	29	11	1
Out of labor force	35	30	25	9	1
Document					
Employed full time	14	26	35	21	4
Employed part time	17	29	35	17	3
Employed, not at work	16	30	34	18	3
Unemployed	26	34	29	10	1
Out of labor force	39	31	22	7	1
Quantitative					
Employed full time	13	23	35	23	6
Employed part time	15	27	36	18	4
Employed, not at work	17	24	36	19	4
Unemployed	28	32	28	10	2
Out of labor force	37	27	24	10	2

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Adult Literacy Survey (NALS), 1992. (Originally published as table 1.7 on p. 35 of the complete report from which this article is excerpted.)

- The mean literacy scores of the full-time employed were positively related to educational attainment. The mean scores of college graduates were higher than those of high school graduates, which were higher than the mean scores of high school dropouts.

Literacy proficiencies by industry and occupation

- The highest mean literacy proficiencies were posted by workers in the finance, insurance, and real estate industries and the public administration sector. Workers in goods-producing industries (agriculture, construction, manufacturing, mining) had the lowest proficiencies, on average.
- Mean literacy proficiencies were highest for professional workers, followed by managers, administrators, and technical workers. Mean scores were lowest for semiskilled and unskilled blue-collar workers and for farm, forestry, and fishing workers.

Literacy proficiencies and earnings

- The literacy proficiencies of the employed were positively and strongly associated with their weekly and annual earnings. On the prose scale, mean weekly earnings ranged from $355 for full-time workers in Level 1 to $531 for those in Level 3 to a high of $910 for those in Level 5.
- The weekly earnings impact of higher literacy scores was smaller for workers who had completed some high school (9th to 12th grade, no diploma) and largest for those with a 2- or 4-year degree.
- The direct earnings effect of higher literacy proficiencies was larger for older workers than for younger workers. For example, comparing the annual earnings of workers in Level 3 with those in Level 1, the relative earnings ratio rises from 1.10 for 16- to 24-year-olds to 1.78 for 45- to 54-year-olds.

Literacy proficiencies of the poor or near poor and of public assistance recipients

- The literacy proficiencies of the poor or near poor (those living in households with a combined money income below 125 percent of the poverty line) and of Aid to Families with Dependent Children (AFDC) recipients were well below average on each of the scales. However, poor or near poor adults who were in the labor force had higher average proficiencies than those not in the labor force.

Participation in basic skills programs

- Less than 5 percent of those in the labor force had ever participated in any basic skills training outside of their high school. However, labor force participants with lower literacy proficiencies were more likely than those with higher proficiencies to have received basic skills training in the past 5 years. Even so, only 6 percent of labor force participants in Level 1 had received basic skills training during the past 5 years.
- Among those who said they had received some basic skills training since leaving school, only 4 out of 10 indicated that the training was provided by an employer or labor union.

Reflections on the Results

These results do not answer the question: "Are the literacy skills of our nation's workers adequate?" They do, however, provide some critical information about the literacy levels of those in and those not in the labor force, as well as the employed and the unemployed. Overall, civilians in the labor force displayed higher literacy skills than those out of the labor force, and employed workers outperformed the unemployed.

Still, about 40 percent of those in the labor force posted literacy scores in the lowest two levels. Moreover, less than 5 percent of labor force participants had received any recent training in these basic skills. Together, these findings paint a bleak outlook for the future of the U.S. labor market. On the positive side, however, the mean literacy scores of the full-time employed rose from the youngest age group to the 35–44 age group, then declined as age increased. These results indicate that newer entrants into the full-time labor force will have stronger average literacy proficiencies than those who will be retiring over the next decade, thereby raising the average proficiency of the labor force.

In addition, the rising annual earnings differentials between college and high school graduates appear to reflect, in part, a rising economic payoff to literacy proficiencies. Those who earn a college degree possess considerably stronger literacy skills and are more likely to be rewarded for their skills with higher earnings and faster wage growth.

Analyses of literacy proficiencies by occupation and major industry revealed large variability across sectors, partially due to the educational requirements of certain occupations and industrial groups. While workers in the finance, insurance, and real estate industries and the public administration sector posted relatively high proficiencies, many frontline, blue-collar workers within the goods-producing industries displayed quite limited skills. Given that 60 percent performed in Level 1 or 2 on the prose and document scales, further investments in the literacy skills of our frontline workers may help to improve our productivity and future economic competitiveness.

Literacy skills are strongly related to weekly and annual earnings overall and for most demographic and socioeconomic subgroups of the employed, although the relationship is considerably weaker for younger workers (under the age of 25) and for high school dropouts. The earnings effects of higher prose and quantitative scores are significantly associated with the intensity with which workers use their reading, writing, and mathematics skills on the job. Employees who apply such skills daily at work had sharply higher economic returns than those who do not. Raising the productivity and earnings potential of the future workforce will require simultaneous increases in both the demand and supply of literacy proficiencies.

Literacy deficits also seem to be an important barrier to the employability of the poor or near poor who are not active in the labor force. Integrating education programs with job placement, job search training, and job training programs may provide the means for encouraging more disadvantaged citizens to enter the workforce as well as raise the long-term earning potential of future labor force participants.

Finally, there is a need for expanded literacy training of the nation's workers through their workplace. The NALS data indicate that nearly all subgroups of employees, including frontline workers, receive positive economic payoffs from higher literacy proficiencies. Future efforts geared toward improving the quantity and quality of on-the-job literacy training are likely to be important in maintaining and improving the country's labor productivity, real wages, and economic competitiveness.

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Data source: The NCES 1992 National Adult Literacy Survey (NALS).

For technical information, see the complete report:

Sum, A. (1999). *Literacy in the Labor Force: Results From the National Adult Literacy Survey* (NCES 1999–470).

For additional details on survey methodology, see

Irwin, K., Jenkins, L., Campbell, A., Yamamoto, K., Norris, N., Rock, D., Jungeblut, A., O'Reilly, P., Kolstad, A., Berlin, M., Mohadjer, L., Waksberg, J., Goksel, H., Burke, J., Rieger, S., Green, J., Klein, M., Mosenthal, P., and Baldi, S. (forthcoming). *Technical Report and Data File User's Manual for the 1992 National Adult Literacy Survey* (NCES 2000-465).

Campbell, A., Kirsch, I., and Kolstad, A. (1992). *Assessing Literacy: The Framework for the National Adult Literacy Survey* (NCES 92–113).

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To obtain the complete report (NCES 1999–470), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Crosscutting Statistics

Projections of Education Statistics to 2009
Debra E. Gerald and William J. Hussar 99

Projections of Education Statistics to 2009

Debra E. Gerald and William J. Hussar

This article was excerpted from the Foreword, Introduction, and Highlights of the Compendium report of the same name. The sample survey and universe data are from many sources, both government and private, which are listed at the end of this article.

Introduction

Projections of Education Statistics to 2009 is the 28th report in a series begun in 1964. This report provides revisions of projections shown in *Projections of Education Statistics to 2008* and includes statistics on elementary and secondary schools and institutions of higher education at the national level. For the nation, the report contains data on enrollment, teachers, graduates, and expenditures for the past 14 years and projections to the year 2009.

In addition, the report includes projections for the 50 states and the District of Columbia. Specifically, it contains state-level data on projections of public elementary and secondary school enrollment and public high school graduates to the year 2009. Similar methodologies were used to obtain a uniform set of projections for the 50 states and the District of Columbia. These projections were further adjusted to agree with the national projections of public elementary and secondary school enrollment and public high school graduates appearing in this report. The projections were produced to provide researchers, policy analysts, and others with state-level projections developed with a consistent methodology. They are not intended to supplant detailed projections prepared in individual states.

The projections presented in this report reflect revisions influenced by the 1990 census. The revised population projections developed by the U.S. Bureau of the Census also reflect the incorporation of the 1997 estimates and latest assumptions for the fertility rate, net immigration, and mortality rate.

As detailed in the full report's technical appendixes and outlined in table A, assumptions regarding the population and the economy are the key factors underlying the projections of education statistics. Because projections of time series depend on the validity of many assumptions, these projections are uncertain and usually differ from the final reported data. Therefore, this report includes three alternative projections for most of the statistical series. These alternative projections are based on different assumptions about growth paths. Although the first alternative set of projections (middle alternative) is deemed to represent the most likely projections, the low and high alternatives provide a reasonable range of outcomes. The alternatives are not statistical confidence limits, but instead represent judgments made by the authors as to reasonable upper and lower bounds. Alternative projections are presented for higher education enrollment, classroom teachers, and expenditures of public elementary and secondary schools and institutions of higher education.

National Highlights

Overview of selected statistics

Figure A shows the amount of change in selected education statistics for the nation, both historical and projected. The remainder of the highlights consist of projected statistics.

Enrollments and graduates

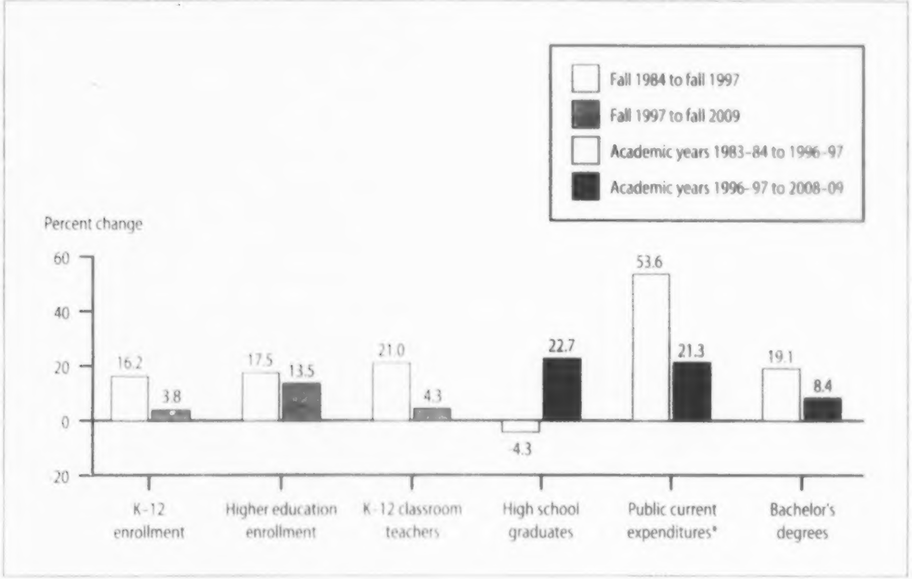
Over the projection period, growth in the school-age and traditional college-age populations is expected to cause increases in enrollments. Specifically, the 5- to 17-year-old population is projected to increase from 50.4 million in

Table A.—Summary of forecast assumptions to 2009

Variable	Middle alternative	Low alternative	High alternative
Demographic assumptions			
Population	Projections are consistent with the Census Bureau middle series estimates, which assume a fertility rate of 2.10 births per woman by the year 2009, a net immigration of 820,000 per year, and a further reduction in the mortality rate.	Same as middle alternative	Same as middle alternative
18- to 24-year-old population	Average annual growth rate of 1.5%	Same as middle alternative	Same as middle alternative
25- to 29-year-old population	Average annual growth rate of 0.3%	Same as middle alternative	Same as middle alternative
30- to 34-year-old population	Average annual decline of 1.1%	Same as middle alternative	Same as middle alternative
35- to 44-year-old population	Average annual decline of 1.0%	Same as middle alternative	Same as middle alternative
Public elementary enrollment	Average annual growth rate of 0.02%	Same as middle alternative	Same as middle alternative
Public secondary enrollment	Average annual growth rate of 0.9%	Same as middle alternative	Same as middle alternative
Undergraduate enrollment	Average annual growth rate of 1.2%	Average annual growth rate of 1.0%	Average annual growth rate of 1.4%
Graduate enrollment	Average annual growth rate of 0.2%	Average annual growth rate of 0.1%	Average annual growth rate of 0.4%
First-professional enrollment	Average annual growth rate of 0.1%	Average annual growth rate of 0.0%	Average annual growth rate of 0.4%
Full-time-equivalent enrollment	Average annual growth rate of 1.3%	Average annual growth rate of 1.1%	Average annual growth rate of 1.5%
Economic assumptions			
Disposable income per capita in constant dollars	Annual percent changes range between 0.8% and 3.4% with an annual compound growth rate of 1.4%.	Annual percent changes range between 0.0% and 2.8% with an annual compound growth rate of 0.9%.	Annual percent changes range between 1.4% and 4.1% with an annual compound growth rate of 1.9%.
Education revenue receipts from state sources per capita in constant dollars	Annual percent changes range between 0.0% and 1.6% with an annual compound growth rate of 0.6%.	Annual percent changes range between -0.6% and 1.0% with an annual compound growth rate of 0.1%.	Annual percent changes range between -0.3% and 3.2% with an annual compound growth rate of 1.1%.
Inflation rate	Inflation rate ranges between 2.1% and 3.5%.	Inflation rate ranges between 3.2% and 5.0%.	Inflation rate ranges between 1.3% and 2.4%.
Personal taxes and nontax receipts to state and local governments per capita in constant dollars	Annual percent changes range between -2.3% and 2.3% with an annual compound growth rate of 0.6%.	Annual percent changes range between -3.0% and 0.7% with an annual compound growth rate of -0.2%.	Annual percent changes range between -1.5% and 4.4% with an annual compound growth rate of 1.4%.
Sum of personal taxes and nontax receipts and indirect business taxes and tax accruals (excluding property taxes) to state and local governments per capita in constant dollars	Annual percent changes range between -1.0% and 1.9% with an annual compound growth rate of 0.8%.	Annual percent changes range between -1.6% and 0.8% with an annual compound growth rate of 0.2%.	Annual percent changes range between -0.3% and 3.4% with an annual compound growth rate of 1.4%.
Unemployment rate (men)			
Ages 18 to 19	Remains between 14.4% and 17.7%.	Remains between 14.4% and 20.2%.	Remains between 13.7% and 17.4%.
Ages 20 to 24	Remains between 8.6% and 10.1%.	Remains between 8.6% and 12.1%.	Remains between 7.5% and 9.8%.
Age 25 and over	Remains between 3.3% and 4.5%.	Remains between 3.3% and 5.6%.	Remains between 3.0% and 4.3%.
Unemployment rate (women)			
Ages 18 to 19	Remains between 12.0% and 13.8%.	Remains between 12.0% and 15.4%.	Remains between 11.5% and 13.5%.
Ages 20 to 24	Remains between 7.8% and 9.1%.	Remains between 7.8% and 10.3%.	Remains between 7.5% and 8.9%.
Age 25 and over	Remains between 3.7% and 4.3%.	Remains between 3.7% and 5.1%.	Remains between 3.4% and 4.2%.

SOURCE: Originally published as chart 1 on p. xi of the complete report from which this article is excerpted.

Figure A.—Percent change in selected education statistics: 1984 to 1997 and 1997 to 2009



*In constant 1996–97 dollars.

SOURCE: Based on figure 1 on p. viii of the complete report from which this article is excerpted.

1997 to 52.6 million in 2009, an increase of 4 percent. The 18- to 24-year-old population is expected to increase from 25.1 million in 1997 to 29.9 million in 2009, an increase of 19 percent.

Elementary and secondary enrollment. Total public and private elementary and secondary enrollment is projected to increase from 52.2 million in 1997 to 54.5 million in 2006. Then total enrollment is projected to remain steady through the year 2009, resulting in an increase of 4 percent from 1997.

Higher education enrollment. Higher education enrollment is projected to increase from an estimated 14.4 million in 1997 to 16.3 million by the year 2009, an increase of 14 percent. A 12 percent increase is projected under the low alternative, and a 16 percent increase is projected under the high alternative.

Number of high school graduates. High school graduates from public and private high schools are projected to increase from 2.6 million in 1996–97 to 3.2 million by 2008–09, an increase of 23 percent. This significant increase reflects the projected rise in the 18-year-old population.

Number of bachelor's degrees. The number of bachelor's degrees is expected to increase from 1,160,000 in 1996–97 to 1,257,000 by 2008–09, an increase of 8 percent.

Classroom teachers

The number of classroom teachers is projected to increase over the projection period. Under the middle alternative, the number of classroom teachers is expected to increase from 3.04 million in 1997 to 3.17 million by the year 2009, an increase of 4 percent. A 2 percent increase is projected under the low alternative, and a 7 percent increase is projected under the high alternative.

Expenditures and teacher salaries

Between 1995–96 and 2008–09, current expenditures for public elementary and secondary schools are projected to increase in constant dollars, as are current funds expenditures for public and private institutions of higher education.

Current expenditures for public elementary and secondary schools. Under the middle alternative, a 25 percent increase in current expenditures for public elementary and secondary schools is projected for the period from 1995–96 to 2008–09. Under the low alternative, current expenditures are projected to increase by 17 percent; under the high alternative, current expenditures are projected to increase by 32 percent.

Current expenditures per pupil in public elementary and secondary schools. Under the middle alternative, current expenditures per pupil in average daily attendance are forecast to increase 16 percent in constant dollars from 1995–96 to 2008–09. Under the low alternative, current expenditures per pupil are projected to increase 9 percent; under the high alternative, current expenditures per pupil are projected to increase 23 percent.

Teacher salaries in public elementary and secondary schools. Under the middle alternative, teacher salaries are projected to increase 1 percent in constant dollars between 1996–97 and 2008–09. A 2 percent decline is projected under the low alternative, and a 3 percent increase is projected under the high alternative.

Current funds expenditures for institutions of higher education. Total current funds expenditures for institutions of higher education are projected to increase 36 percent in constant dollars under the middle alternative from 1995–96 to 2008–09. Total current funds expenditures are projected to increase at almost the same rate in public institutions and private institutions. A 36 percent increase is projected for public institutions, and a 35 percent increase is projected for private institutions.

State-Level Highlights

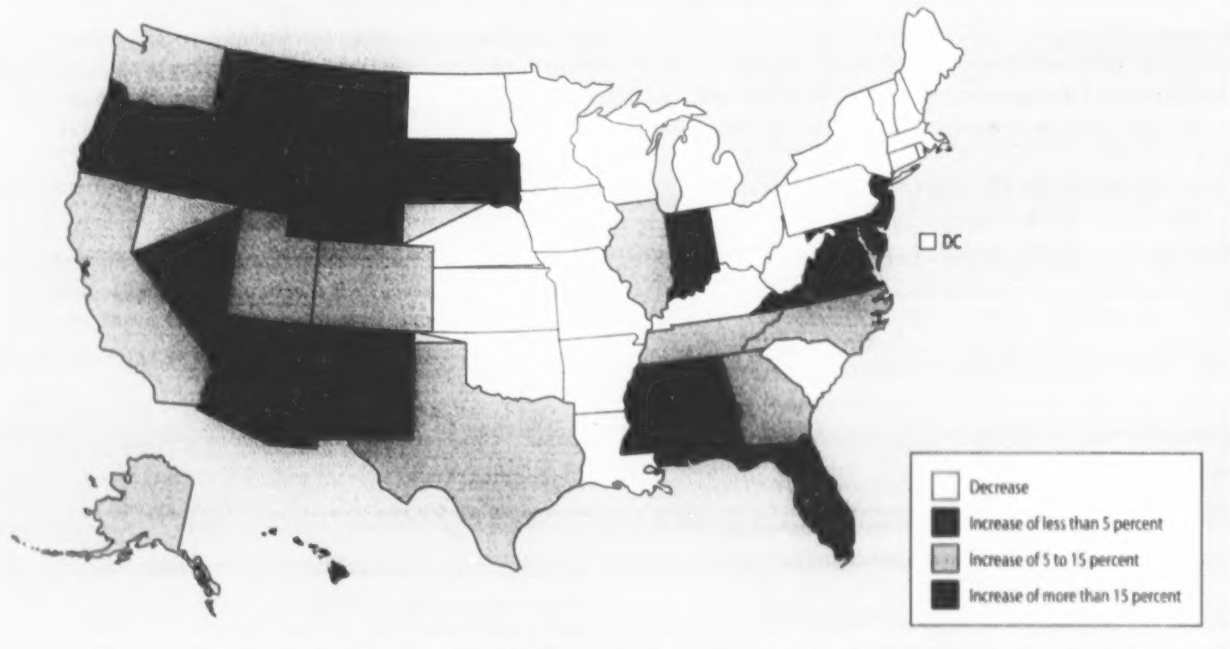
Public elementary and secondary enrollment

While public elementary and secondary school enrollment (kindergarten through grade 12) is expected to increase by 4 percent at the national level between 1997 and the year 2009, changes in enrollment will vary by region and by state (figure B).

Regionally, enrollment will increase most rapidly in the West, where total enrollment is expected to rise 11 percent. Enrollment in the South is projected to increase by 5 percent. Enrollment is expected to decrease by 2 percent in the Northeast and by 1 percent in the Midwest.

At the state level, changes in public school enrollment are projected to range from increases of 20 percent or more in some states to decreases in other states between 1997 and 2009. The largest increases are expected in Arizona (21 percent), Idaho (20 percent), and Nevada (28 percent). The largest decreases are expected in the District of Columbia (10 percent), Maine (9 percent), North Dakota (8 percent), and West Virginia (7 percent).

Figure B.—Percent change in grades K–12 enrollment in public schools, by state: Fall 1997 to fall 2009


☐ DC
☐ Decrease
■ Increase of less than 5 percent
▨ Increase of 5 to 15 percent
■ Increase of more than 15 percent

SOURCE: Originally published as figure 63 on p. 103 of the complete report from which this article is excerpted.

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Public high school graduates

The number of public high school graduates is projected to increase 23 percent nationally between 1996–97 and 2008–09, but growth in the number of graduates will vary by region. In the West, the number is expected to rise by 35 percent. In the Northeast, it is projected to grow by 20 percent. The South and Midwest are expected to have increases of 24 percent and 13 percent, respectively, over the projection period.

Increases in the number of public high school graduates are projected for most states (figure C). Between 1996–97 and 2008–09, sizable increases are expected in Arizona (76 percent), California (41 percent), Florida (45 percent), North Carolina (48 percent), and Nevada (103 percent). Decreases are projected for the District of Columbia (5 percent), Louisiana (5 percent), North Dakota (8 percent), West Virginia (7 percent), and Wyoming (15 percent).

Data sources:

NCES: Common Core of Data (CCD); Private School Universe Survey (PSS); Private School Early Estimates Survey; Higher Education General Information Survey (HEGIS); and Integrated Postsecondary Education Data System (IPEDS).

Other: The U.S. Bureau of the Census' Current Population Survey; the National Education Association's *Estimates of School Statistics* (an annual publication); and Standard and Poor's DRI (an economic forecasting service).

For technical information, see the complete report:

Gerald, D.E., and Hussar, W.J. (1999). *Projections of Education Statistics to 2009* (NCES 1999–038).

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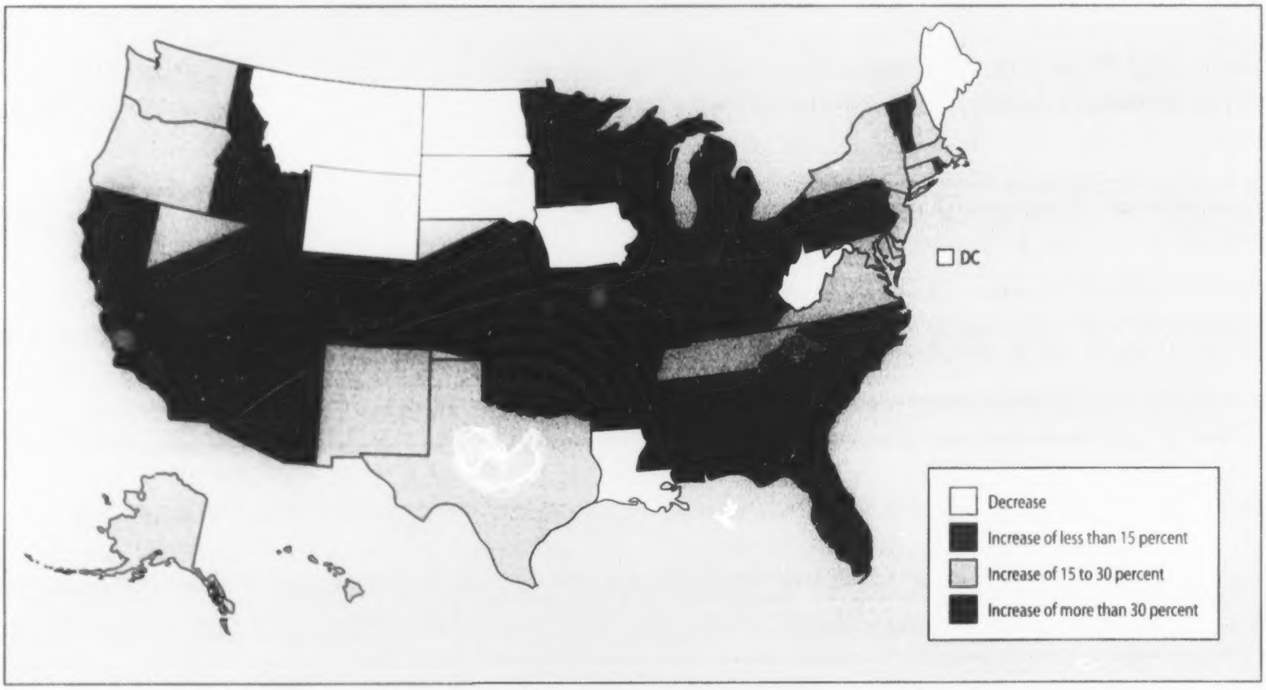
Figure C.—Percent change in number of public high school graduates, by state: 1996–97 to 2008–09


☐ DC
☐ Decrease
■ Increase of less than 15 percent
▨ Increase of 15 to 30 percent
■ Increase of more than 30 percent

SOURCE: Originally published as figure 69 on p. 116 of the complete report from which this article is excerpted.

Data Products, Other Publications, and Funding Opportunities

Data Products

Data File: CCD Public Elementary/Secondary School Universe Survey: School Year 1997–1998 105

Data File: CCD Local Education Agency Universe Survey: School Year 1997–1998 106

Data File: CCD State Nonfiscal Survey of Public Elementary/Secondary Education: School Year 1997–1998 106

Data File: CCD National Public Education Financial Survey: School Year 1996–1997 107

Data File: Integrated Postsecondary Education Data System: 1996 CD-ROM 107

Other Publications

NAEP 1998 Civics Report Card Highlights
Shari L. Santapau, Anthony D. Lutkus, and Andrew R. Weiss 107

NAEP 1998 Writing Report Card Highlights
Shari L. Santapau, Elissa A. Greenwald, and Hilary R. Persky 107

NAEP 1998 Writing State Reports
Laura J. Jerry and Nada L. Ballator 108

Pocket Projections: Projections of Education Statistics to 2009
William J. Hussar 108

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Data Products

Data File: CCD Public Elementary/Secondary School Universe Survey: School Year 1997–1998

Part of the NCES Common Core of Data (CCD), the "Public Elementary/Secondary School Universe Survey" has two primary purposes: (1) to list all public elementary and secondary schools in the 50 states, District of Columbia, five outlying areas, and Department of Defense Dependents Overseas Schools; and (2) to provide basic information and descriptive statistics on the schools, their students, and their teachers. Data are provided annually by state education agencies (SEAs) from their administrative records. The 1997–98 data set contains 92,352 records, one for each of the listed schools.

The following information is included for each school: NCES and state school identification numbers; name and ID number of the agency that operates the school; name, address, and phone number of the school; school type (regular, special education, vocational education, and alternative); locale code (seven categories, from urban to rural); number of students, by grade and ungraded; number of students eligible for free lunch; number of students by race/ethnicity (five categories); and number of full-time-equivalent (FTE) teachers.

The data can be downloaded from the NCES Web Site either in SAS files or in flat files that can be used with other statistical processing programs, such as SPSS. Documentation is provided in separate files.

For questions about this data product, contact John Sietsema *(john_sietsema@ed.gov).*

To obtain this data product (NCES 1999-332), visit the NCES Web Site *(http://nces.ed.gov).*

Data File: CCD Local Education Agency Universe Survey: School Year 1997–1998

The Common Core of Data (CCD) "Local Education Agency Universe Survey" is one of the five surveys that make up the CCD collection of surveys. This survey provides (1) a complete listing of all education agencies responsible for providing free public elementary/secondary instruction or education support services, and (2) basic information about these education agencies and the students for whose education they are responsible. Most of the agencies listed are school districts or other local education agencies (LEAs). The data are provided annually by state education agencies (SEAs) from their administrative records. The 1997–98 data set contains 16,555 records, one for each public elementary/secondary education agency in the 50 states, District of Columbia, five outlying areas, and Department of Defense Dependents Overseas Schools.

The data file includes the following information for each listed agency: NCES and state identification numbers; agency name, address, and phone number; agency type (regular school district, component of supervisory union, headquarters of supervisory union, regional educational service agency, state-operated agency, federally operated agency, or other); county code; metropolitan status code; number of students (ungraded and total prekindergarten through grade 12); number of students in special education programs; number of high school completers; dropout data for grades 7–12; and number of instructional and support staff, by occupational category.

The data can be downloaded from the NCES Web Site either as a SAS file or as a flat file that can be used with other statistical processing programs, such as SPSS. Documentation is provided in separate files.

For questions about this data product, *contact John Sietsema* (john_sietsema@ed.gov).

To obtain this data product (NCES 1999-333), visit the NCES Web Site *(http://nces.ed.gov).*

Data File: CCD State Nonfiscal Survey of Public Elementary/Secondary Education: School Year 1997–1998

The "State Nonfiscal Survey of Public Elementary/Secondary Education" is part of the Common Core of Data (CCD) collection of surveys. This survey provides public elementary and secondary student, staff, and graduate counts for the 50 states, District of Columbia, five outlying areas, and Department of Defense Dependents Overseas Schools. The data are provided annually by state education agencies (SEAs) from their administrative records. The 1997–98 data set contains 57 records, one for each reporting state or jurisdiction.

For each state or jurisdiction, the data file includes the following information: name, address, and phone number of the SEA; number of teachers, by level; number of other staff, by occupational category; number of students, by grade and ungraded, as well as by race/ethnicity (five racial/ethnic categories); and number of high school completers (for school year 1996–97), by type of completion (regular diploma, other diploma, high school equivalency, or other completion) and by race/ethnicity.

The data can be downloaded from the NCES Web Site either as an Excel file or as a flat file that can be used with statistical processing programs such as SPSS or SAS. Documentation is provided in separate files.

For questions about this data product, contact Frank Johnson *(frank_johnson@ed.gov).*

To obtain this data product (NCES 1999-355), visit the NCES Web Site *(http://nces.ed.gov).*

Data File: CCD National Public Education Financial Survey: School Year 1996–1997

The Common Core of Data (CCD) "National Public Education Financial Survey" provides detailed data on public elementary and secondary education finances for the 50 states, District of Columbia, and five outlying areas. Financial data are audited at the end of each fiscal year and then submitted to NCES by the state education agencies (SEAs) from their administrative records. This file provides data for fiscal year 1997 (school year 1996–97). The data set contains 56 records, one for each reporting state or jurisdiction.

For each state or jurisdiction, the data file includes revenues by source (local, intermediate, state, and federal); local revenues by type (e.g., local property taxes); current expenditures by function (instruction, support, and noninstruction) and by object (e.g., teacher salaries or food service supplies); capital expenditures (e.g., school construction and instructional equipment); average number of students in daily attendance; and total number of students enrolled.

The data can be downloaded from the NCES Web Site either as an Excel file or as a flat file that can be used with statistical processing programs such as SPSS or SAS. Documentation is provided in separate files.

For questions about this data product, contact Frank Johnson *(frank_johnson@ed.gov).*

To obtain this data product (NCES 1999–358), visit the NCES Web Site *(http://nces.ed.gov).*

Data File: Integrated Postsecondary Education Data System: 1996 CD-ROM

The Integrated Postsecondary Education Data System (IPEDS) is a comprehensive system of surveys designed to collect data from all institutions whose primary purpose is to provide postsecondary education. The IPEDS universe is made up of approximately 10,000 institutions, including baccalaureate or higher degree-granting institutions, 2-year-award institutions, and less-than-2-year institutions.

This CD-ROM contains data on the universe of IPEDS institutions for survey cycle 1996. Included are data for academic year 1995–96 from the IPEDS "Completions Survey," "Finance Survey," and "Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty Survey," as well as data for academic year 1996–97 from the "Fall Enrollment Survey," "Institutional Characteristics Survey," and "Fall Staff Survey."

For questions about content, contact Samuel Barbett *(samuel_barbett@ed.gov).*

To obtain this CD-ROM (NCES 1999–163), call the toll-free ED Pubs number (877–433–7827) or contact GPO (202–512–1800).

Other Publications

NAEP 1998 Civics Report Card Highlights

Shari L. Santapau, Anthony D. Lutkus, and Andrew R. Weiss

The National Assessment of Educational Progress (NAEP) is administered by NCES with oversight by the National Assessment Governing Board (NAGB). In 1998, NAEP administered a civics assessment to a national sample representative of all students at grades 4, 8, and 12. The results of the assessment provide information about students' civic knowledge, skills, and interests.

This 12-page publication presents highlights from the 1998 NAEP Civics Assessment, describing its content and major findings, as well as students' experiences at home and in school that are associated with achievement in the study of civics.

Author affiliations: S.L. Santapau, A.D. Lutkus, and A.R. Weiss, Educational Testing Service.

For questions about this publication, contact Arnold Goldstein *(arnold_goldstein@ed.gov).*

To obtain this publication (NCES 2000–460), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

NAEP 1998 Writing Report Card Highlights

Shari L. Santapau, Elissa A. Greenwald, and Hilary R. Persky

The National Assessment of Educational Progress (NAEP) is administered by NCES with oversight by the National Assessment Governing Board (NAGB). In 1998, NAEP administered a writing assessment to a national sample representative of all students at grades 4, 8, and 12 and to state samples representative of all students at grade 8 in the states and other jurisdictions participating in the state-by-state assessment. The results of the assessment provide a snapshot of American students' achievement in writing.

This 16-page publication presents highlights from the 1998 NAEP Writing Assessment, describing its content, major findings at the national and state levels, and students' experiences at home and in school that appear to be associated with achievement in writing.

Author affiliations: S.L. Santapau, E.A. Greenwald, and H.R. Persky, Educational Testing Service.

For questions about this publication, contact Arnold Goldstein *(arnold_goldstein@ed.gov).*

To obtain this publication (NCES 1999–464), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

NAEP 1998 Writing State Reports

Laura J. Jerry and Nada L. Ballator

The National Assessment of Educational Progress (NAEP) assessments are administered to representative samples of students at the national level as well as at the state level for those states that participate. The NAEP writing assessment was administered at the state level for the first time in 1998. The state-level assessment was administered at grade 8 in both public and nonpublic schools.

The customized report for each participating state or jurisdiction presents results for that state, along with national and regional results for comparison. (*The NAEP 1998 Writing Report Card for the Nation and the States* [NCES 1999–462] is the companion to the state reports; it offers data for all states and additional national data.)

Each state report has two sections. The first section provides basic information on NAEP, followed by overall results for public schools in the state, the region, and the nation, as well as comparisons of the state's performance with the performance of other participating states and jurisdictions. The second section reports findings for the state's grade 8 public school population broken down by major demographic categories, as well as results by school type. This section also includes comparisons with regional and national results.

Author affiliations: L.J. Jerry and N.L. Ballator, Educational Testing Service.

For questions about the state reports, contact Arnold Goldstein *(arnold_goldstein@ed.gov).*

To obtain a state report (NCES 1999–463), visit the NCES Web Site *(http://nces.ed.gov).*

Pocket Projections: Projections of Education Statistics to 2009

William J. Hussar

Each year, NCES publishes this pocket summary of the *Projections of Education Statistics*. The pocket summary provides the reader with key information extracted from the full report. Included are data on enrollment at all education levels, numbers of high school graduates, earned degrees conferred, classroom teachers, and expenditures for public elementary and secondary schools and institutions of higher education. This year's edition of *Pocket Projections* includes 1986–87 data as well as estimates for 1997–98 and projections for 2008–09.

For questions about this pocket summary, contact William J. Hussar *(william_hussar@ed.gov).*

To obtain this pocket summary (NCES 1999–021), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

Mini-Digest of Education Statistics: 1998

Charlene Hoffman

The *Mini-Digest of Education Statistics: 1998* (the sixth edition) is a pocket-sized compilation of statistical information covering American education from kindergarten through graduate school. It is a handy reference source for materials found in much greater detail in the *Digest of Education Statistics, The Condition of Education,* and *Youth Indicators.*

The *Mini-Digest* includes sections on elementary/secondary and postsecondary enrollment, teachers, educational outcomes, and finance. Each section contains short, easy-to-understand tables and figures along with text summaries. Current and past-year data are included, as well as projections for enrollment through 2008.

For questions about the Mini-Digest, contact Charlene Hoffman *(charlene_hoffman@ed.gov).*

To obtain the Mini-Digest (NCES 1999–039), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov),* or contact GPO (202–512–1800).

Directory of Public Elementary and Secondary Education Agencies: 1996–97

Lena McDowell and John Sietsema

This directory provides a complete listing of agencies responsible for providing free public elementary/secondary instruction or education support services in the 50 states, District of Columbia, five outlying areas, and Department of Defense Dependents Overseas Schools. The agencies are organized by state or jurisdiction and, within each state or jurisdiction, by agency type. Agencies are divided into six types: regular school districts, supervisory union administrative centers, regional educational service agencies (RESAs), state-operated agencies, federally operated agencies, and other agencies.

The entry for each listed agency includes the following information: agency name, address, and phone number; name of county; metropolitan status code; grade span; student membership (number of students enrolled on the school day closest to October 1, 1996); number of regular high school graduates (1995–96 school year); number of students with Individualized Education Programs (IEPs); number of teachers; and number of schools. This information comes primarily from the 1996–97 "Local Education Agency Universe Survey," part of the NCES Common Core of Data (CCD).

For questions about this directory, contact Lena McDowell *(lena_mcdowell@ed.gov).*

To obtain this directory (NCES 1999-313), call the toll-free ED Pubs number (877-433-7827), visit the NCES Web Site *(http://nces.ed.gov),* or contact GPO (202-512-1800).

Funding Opportunities

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year.

For more information, contact Edith McArthur *(edith_mcarthur@ed.gov)* or visit the AERA Grants Program Web Site *(http://aera.ucsb.edu).*

The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage educational researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from $15,000 to $100,000.

For more information, contact Alex Sedlacek *(alex_sedlacek@ed.gov).*

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